

GenCore version 5.1.1.6
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OM protein - protein search, using sw model

Run on: July 12, 2004, 20:50:37 ; Search time 16 Seconds
(without alignments)
129.065 Million cell updates/sec

Title: US-10-021-403A-8

Perfect score: 198

Sequence: 1 HVDAIFTNSYRKVLQAQLSARKLLQDILNRQOGERNQEGA 40

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 389414 seqs, 51625971 residues

Total number of hits satisfying chosen parameters: 389414

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Issued Patents AA.*

- 1: /cgn2_6/ptodata/2/iaa/5A COMB.pap:*
- 2: /cgn2_6/ptodata/2/iaa/5B COMB.pap:*
- 3: /cgn2_6/ptodata/2/iaa/6A COMB.pap:*
- 4: /cgn2_6/ptodata/2/iaa/6B COMB.pap:*
- 5: /cgn2_6/ptodata/2/iaa/PCTUS COMB.pap:*
- 6: /cgn2_6/ptodata/2/iaa/backfiles1.pap:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	198	100.0	40	4	US-09-624-268B-1
2	182	91.9	44	1	US-08-218-608-12
3	182	91.9	44	1	US-08-062-472B-29
4	182	91.9	44	1	US-08-062-472B-30
5	182	91.9	44	4	US-09-122-171D-5
6	182	91.9	44	4	US-09-122-171D-9
7	182	91.9	45	1	US-08-442-029-6
8	181	91.4	40	5	PCT-US91-09152-2
9	181	91.4	44	1	US-08-062-472B-28
10	181	91.4	44	4	US-09-122-171D-7
11	177	89.4	40	4	US-09-624-268B-14
12	177	89.4	44	1	US-08-062-472B-31
13	177	89.4	44	4	US-09-122-171D-6
14	176	88.9	44	4	US-09-122-171D-11
15	168	84.8	75	1	US-07-934-017-1
16	168	84.8	76	1	US-08-168-941-1
17	167	84.3	40	1	US-08-410-353-2
18	167	84.3	40	2	US-08-493-594-2
19	167	84.3	40	4	US-09-122-171D-10
20	167	84.3	41	1	US-08-095-162-7
21	167	84.3	41	1	US-08-410-353-7
22	167	84.3	41	1	US-08-470-220A-7
23	167	84.3	41	3	US-08-967-374-7
24	167	84.3	41	4	US-09-505-991-7
25	167	84.3	41	5	PCT-US95-15800-23
26	167	84.3	42	1	US-08-095-162-24
27	167	84.3	42	1	US-08-410-353-8

28	167	84.3	42	1	US-08-470-220A-24	Sequence 24, Appl
29	167	84.3	42	3	US-08-967-374-24	Sequence 24, Appl
30	167	84.3	42	4	US-09-505-991-24	Sequence 24, Appl
31	167	84.3	44	1	US-07-701-414A-1	Sequence 1, Appl
32	167	84.3	44	1	US-07-924-054-9	Sequence 9, Appl
33	167	84.3	44	1	US-08-095-162-16	Sequence 16, Appl
34	167	84.3	44	1	US-08-095-162-25	Sequence 25, Appl
35	167	84.3	44	1	US-08-379-039C-3	Sequence 3, Appl
36	167	84.3	44	1	US-08-062-472B-32	Sequence 32, Appl
37	167	84.3	44	1	US-08-410-353-1	Sequence 1, Appl
38	167	84.3	44	1	US-08-470-220A-16	Sequence 16, Appl
39	167	84.3	44	1	US-08-470-220A-25	Sequence 25, Appl
40	167	84.3	44	1	US-08-519-180-4	Sequence 4, Appl
41	167	84.3	44	2	US-08-661-329A-1	Sequence 1, Appl
42	167	84.3	44	2	US-08-493-594-1	Sequence 1, Appl
43	167	84.3	44	2	US-08-685-357B-1	Sequence 1, Appl
44	167	84.3	44	2	US-08-702-114-1	Sequence 1, Appl
45	167	84.3	44	2	US-08-702-113-1	Sequence 1, Appl

ALIGNMENTS

RESULT 1
US-09-624-268B-1
; Sequence 1, Application US/09624268B
; Patent No. 6551996
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert
; APPLICANT: Draghita-Akli, Ruxandra
; TITLE OF INVENTION: Super-Active Porcine Growth Hormone Releasing Hormone Analog
; FILE REFERENCE: P01857051
; CURRENT APPLICATION NUMBER: US/09/624,268B
; PRIOR FILING DATE: 2000-07-24
; PRIOR APPLICATION NUMBER: US 60/145,624
; PRIOR FILING DATE: 1999-07-26
; PRIOR APPLICATION NUMBER: PCT/US00/20127
; PRIOR FILING DATE: 2000-07-24
; NUMBER OF SEQ ID NOS: 14
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 1
; TYPE: PRT
; LENGTH: 40
; ORGANISM: Artificial sequence
; FEATURE:
; OTHER INFORMATION: Hormone
US-09-624-268B-1

Query Match 100.0%; Score 198; DB 4; Length 40;
Best Local Similarity 100.0%; Pred. No. 4e+20;
Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQAQLSARKLLQDILNRQOGERNQEGA 40
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Db 1 HVDAIFTNSYRKVLQAQLSARKLLQDILNRQOGERNQEGA 40

RESULT 2
US-08-218-608-12
; Sequence 12, Application US/08218608
; Patent No. 5607859
; GENERAL INFORMATION:
; APPLICANT: BIEMANN, KLAUS
; APPLICANT: JUHASZ, PETER
; TITLE OF INVENTION: METHODS AND PRODUCTS FOR MASS
; TITLE OF INVENTION: SPECTROMETRIC MOLECULAR WEIGHT DETERMINATION OF POLYIONIC
; TITLE OF INVENTION: ANALYTES EMPLOYING POLYIONIC REAGENTS
; NUMBER OF SEQUENCES: 12
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: WOLF, GREENFIELD & SACKS, P.C.
; STREET: 600 ATLANTIC AVENUE
; CITY: BOSTON
; STATE: MA

```

; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (503) 226-7391
; TELEFAX: (503) 228-9446
; INFORMATION FOR SEQ ID NO: 29:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 44 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; US-08-062-472B-29
;
Query Match          91.9%; Score 182; DB 1; Length 44;
Best Local Similarity 90.0%; Pred. No. 6.5e-18;
Matches 36; Conservative 2; Mismatches 2; Indels
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Qy 1 HVDAIFTNSYRKVLAQLSARKLLQDILNROOQGRNQEGA 40
;
Db 1 YADAIFTNSYRKVLGQLSARKLLQDILNROOQGRNQEGA 40
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RESULT 4
US-08-062-472B-30
; Sequence 30, Application US/08062472B
; Patent No. 5695954
; GENERAL INFORMATION:
; APPLICANT: Sherwood, Nancy G M
; APPLICANT: Parker, David B
; APPLICANT: McRory, John E
; APPLICANT: Lescheid, David W
; TITLE OF INVENTION: DNA ENCODING TWO FISH NEUROPEPTIDES
; NUMBER OF SEQUENCES: 49
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: KLARQUIST, SPARKMAN, CAMPBELL, LEIGH &
; ADDRESSEE: WHINSTON, LLP
; STREET: ONE WORLD TRADE CENTER, SUITE 1600, 121 S.W.
; STREET: SALMON STREET
; CITY: PORTLAND
; STATE: OREGON
; COUNTRY: USA
; ZIP: 97204-2988
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent in Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/062,472B
; FILING DATE: 14-MAY-1993
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: POLLEY, RICHARD J
; REGISTRATION NUMBER: 28107
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (503) 226-7391
; TELEFAX: (503) 228-9446
; INFORMATION FOR SEQ ID NO: 30:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 44 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; US-08-062-472B-30
;
Query Match          91.9%; Score 182; DB 1; Length 44;
Best Local Similarity 90.0%; Pred. No. 6.5e-18;
Matches 36; Conservative 2; Mismatches 2; Indels
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Qy 1 HVDAIFTNSYRKVLAQLSARKLLQDILNROOQGRNQEGA 40
;
Db 1 YADAIFTNSYRKVLGQLSARKLLQDILNROOQGRNQEGA 40
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RESULT 5
US-09-122-171D-5
; Sequence 5, Application US/09122171D
; Patent No. 6423693
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: US/09/122,171D
; PRIOR FILING DATE: 1998-07-24
; PRIOR FILING DATE: 1997-10-20
; PRIOR APPLICATION NUMBER: 60/062,608
; PRIOR FILING DATE: 1997-10-20
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 5
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Bos taurus GHRH
US-09-122-171D-5

Query Match          91.9%; Score 182; DB 4; Length 44;
Best Local Similarity 90.0%; Pred. No. 6.5e-18;
Matches 36; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 HVDAIFTSYRKVLQAQLSARKLLQDILNRQOGERNQEGA 40
Db 1 YADAIFTSYRKVLGQLSARKLLQDILNRQOGERNQEGA 40

RESULT 6
US-09-122-171D-9
; Sequence 9, Application US/09122171D
; Patent No. 6423693
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT APPLICATION NUMBER: US/09/122,171D
; CURRENT FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: 60/062,608
; PRIOR FILING DATE: 1997-10-20
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 9
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Capra hircus GHRH
US-09-122-171D-9

Query Match          91.9%; Score 182; DB 4; Length 44;
Best Local Similarity 90.0%; Pred. No. 6.5e-18;
Matches 36; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 HVDAIFTSYRKVLQAQLSARKLLQDILNRQOGERNQEGA 40
Db 1 YADAIFTSYRKVLGQLSARKLLQDILNRQOGERNQEGA 40

RESULT 7
US-08-442-029-6
; Sequence 6, Application US/08442029
; Patent No. 5756458
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; GENERAL INFORMATION:
; APPLICANT: Kubiak, Teresa M.
; APPLICANT: Friedman, Alan R.
; TITLE OF INVENTION: Stabilized, Potent GRF Analogs
; NUMBER OF SEQUENCES: 12
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Upjohn Company - Corp. Patents & Trademarks
; STREET: 301 Henrietta Street
; CITY: Kalamazoo
; STATE: Michigan
; COUNTRY: USA
; ZIP: 49001
; COMPUTER READABLE FORM:
; MEDIUM TYPE: diskette (3M 5-1/4", DS double side 500 KB)
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: WordPerfect 5.1
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/442,029
; FILING DATE:
; CLASSIFICATION: 514
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/614,170
; FILING DATE: 14 No. 5756458 1990
; APPLICATION NUMBER: US 07/427,868
; FILING DATE: 27 Oct 1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/368,231
; FILING DATE: 16 Jun 1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: PCT/US90/02923
; FILING DATE: 30 May 1990
; ATTORNEY/AGENT INFORMATION:
; NAME: William G. Jameson
; REGISTRATION NUMBER: 27,199
; REFERENCE/DOCKET NUMBER: 4552.3 CP
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 616 385 7561
; TELEFAX: 616 385 6897
; INFORMATION FOR SEQ ID NO: 6:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 45
; TYPE: amino acid
; TOPOLOGY: linear
; FEATURE:
; NAME/KEY: C-terminally amidated homoserine residue
; LOCATION: Xaa45
US-08-442-029-6

Query Match          91.9%; Score 182; DB 1; Length 45;
Best Local Similarity 92.5%; Pred. No. 6.7e-18;
Matches 37; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTSYRKVLQAQLSARKLLQDILNRQOGERNQEGA 40
Db 1 YVDAIFTSSYRKVLQAQLSARKLLQDILNRQOGERNQEGA 40

RESULT 8
PCT-US91-09152-2
; Sequence 2, Application PC/TUS9109152
; GENERAL INFORMATION:
; APPLICANT: Kubiak, Teresa M.
; APPLICANT: Sharma, Satish K.
; TITLE OF INVENTION: Fusion Polypeptides
; NUMBER OF SEQUENCES: 42
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Upjohn Company - Corp. Patents & Trademarks
; STREET: 301 Henrietta Street
; CITY: Kalamazoo
; STATE: Michigan
; COUNTRY: USA
; ZIP: 49001
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; Patent No. 5352662
; GENERAL INFORMATION:
; APPLICANT: NO. 5352662man D. Brooks and Gregory F. Needham
; TITLE OF INVENTION: Injectable Extended Release
; TITLE OF INVENTION: Formulations And Methods
; NUMBER OF SEQUENCES: 2
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Thomas Q. Henry
; STREET: Bank One Tower, Suite 3700,
; CITY: Indianapolis
; STATE: Indiana
; COUNTRY: USA
; ZIP: 46204
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette, 3.50 inch, 1.4 Mb storage
; COMPUTER: COMPAQ
; OPERATING SYSTEM: MSDOS
; SOFTWARE: ASCII
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/934,017
; FILING DATE: 19920821
; CLASSIFICATION: 514
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US/07/769,555
; FILING DATE: October 1, 1991
; ATTORNEY/AGENT INFORMATION:
; NAME: Thomas Q. Henry
; REGISTRATION NUMBER: 28,309
; REFERENCE/DOCKET NUMBER: LLY X-7483A
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (317) 634-3456
; TELEFAX: (317) 637-7561
; INFORMATION FOR SEQ ID NO: 1:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 75 Amino Acids
; TYPE: AMINO ACIDS
; STRANDEDNESS: Single
; TOPOLOGY: Linear
; MOLECULE TYPE: Peptide
; US-07-934-017-1

Query Match 84.8%; Score 168; DB 1; Length 75;
Best Local Similarity 86.8%; Pred. No. 9.2e-16;
Matches 33; Conservative 4; Mismatches 1; Indels 0; Gaps 0;

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Db 2 DAIFTNYSRKVLQLSARKLLQDILNRQQGERNQOEGA 39

Search completed: July 12, 2004, 20:54:55
Job time : 17 secs

GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: July 12, 2004, 20:52:33 ; Search time 42.5 Seconds
(without alignments)
293.570 Million cell updates/sec

Title: US-10-021-403A-8

Perfect score: 198

Sequence: 1 HVDAIFNYSYKVLQAQLSARKLLQDILNRQOGERNQEGA 40

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1279676 seqs, 311918243 residues

Total number of hits satisfying chosen parameters: 1279676

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Published Applications AA.*

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18: /cgn2_6/ptodata/2/pubpaa/US60_PUBCOMB.pep.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	198	100.0	40	12	US-10-359-919A-1
2	198	100.0	40	12	US-10-315-907A-1
3	198	100.0	40	14	US-10-021-403A-8
4	198	100.0	40	14	US-10-262-141-1
5	198	100.0	40	14	US-10-262-377-1
6	198	100.0	40	15	US-10-395-709-1
7	192	97.0	40	12	US-10-359-919A-3
8	192	97.0	40	12	US-10-315-907A-3
9	192	97.0	40	15	US-10-395-709-3
10	191	96.5	40	12	US-10-359-919A-2
11	191	96.5	40	12	US-10-315-907A-2
12	191	96.5	40	15	US-10-395-709-2
13	188	94.9	40	12	US-10-359-919A-4
14	188	94.9	40	12	US-10-315-907A-4
15	188	94.9	40	15	US-10-395-709-4

16	182	91.9	44	14	US-10-124-759-5
17	182	91.9	44	14	US-10-124-759-9
18	181	91.4	44	14	US-10-124-759-7
19	177	89.4	40	12	US-10-359-919A-10
20	177	89.4	40	12	US-10-315-907A-10
21	177	89.4	40	14	US-10-262-141-14
22	177	89.4	40	14	US-10-262-377-14
23	177	89.4	40	15	US-10-395-709-5
24	177	89.4	40	15	US-10-395-709-10
25	177	89.4	44	14	US-10-124-759-6
26	176	88.9	44	14	US-10-124-759-11
27	170	85.9	40	12	US-10-359-919A-6
28	170	85.9	40	12	US-10-315-907A-6
29	170	85.9	40	15	US-10-395-709-6
30	167	84.3	40	14	US-10-124-759-10
31	167	84.3	40	14	US-10-021-403A-1
32	167	84.3	44	9	US-09-316-505-1
33	167	84.3	44	12	US-09-858-880-6
34	167	84.3	44	13	US-10-016-403-8
35	167	84.3	44	14	US-10-197-954-77
36	167	84.3	44	14	US-10-224-640-1
37	167	84.3	44	15	US-10-360-101-262
38	167	84.3	70	12	US-10-449-831A-226
39	167	84.3	108	14	US-10-147-087-2
40	165	83.3	44	12	US-10-359-919A-5
41	165	83.3	44	12	US-10-315-907A-5
42	163	82.3	44	14	US-10-004-530A-20
43	162	81.8	44	15	US-10-360-101-175
44	159	80.3	44	9	US-09-420-785A-1
45	157	79.3	44	13	US-10-016-403-9

ALIGNMENTS

RESULT 1

US-10-359-919A-1

; Sequence 1, Application US/10359919A

; Publication No. US20040038918A1

; GENERAL INFORMATION:

; APPLICANT: Baylor College of Medicine

; TITLE OF INVENTION: Modified Pituitary Gland Development in offspring from Expectant

; TITLE OF INVENTION: animals treated with GHRH

; FILE REFERENCE: 108328.00087 - AVSI-0019

; CURRENT APPLICATION NUMBER: US/10/359,919A

; CURRENT FILING DATE: 2003-02-06

; NUMBER OF SEQ ID NOS: 15

; SOFTWARE: PatentIn version 3.1

; SEQ ID NO 1

; LENGTH: 40

; TYPE: PRT

; ORGANISM: artificial sequence

; FEATURE:

; OTHER INFORMATION: This is a growth hormone releasing hormone ("GHRH") analog.

US-10-359-919A-1

Query Match 100.0%; Score 198; DB 12; Length 40;

Best Local Similarity 100.0%; Pred. No. 2.1e-20;

Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HVDAIFNYSYKVLQAQLSARKLLQDILNRQOGERNQEGA 40

|||||

Db 1 HVDAIFNYSYKVLQAQLSARKLLQDILNRQOGERNQEGA 40

|||||

RESULT 2

US-10-315-907A-1

; Sequence 1, Application US/10315907A

; Publication No. US20040057941A1

; GENERAL INFORMATION:

; APPLICANT: AdviaSys

; TITLE OF INVENTION: PLASMIN MEDIATED SUPPLEMENTATION FOR TREATING CHRONICALLY ILL SUBA

; FILE REFERENCE: 108328.00073 - AVSI-0007

; CURRENT APPLICATION NUMBER: US/10/315,907A
; CURRENT FILING DATE: 2002-12-10
; NUMBER OF SEQ ID NOS: 25
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 1
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is a GHRH analog.
US-10-315-907A-1

Query Match 100.0%; Score 198; DB 12; Length 40;
Best Local Similarity 100.0%; Pred. No. 2.1e-20;
Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40
|||
Db 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40

RESULT 3

US-10-021-403A-8
; Sequence 8, Application US/10021403A
; Publication No. US20030074679A1
; GENERAL INFORMATION:
; APPLICANT: Advisys
; TITLE OF INVENTION: Administration of Nucleic Acid Sequence to Female Animal to Enhance
; FILE REFERENCE: Growth in Offspring
; CURRENT APPLICATION NUMBER: US/10/021,403A
; CURRENT FILING DATE: 2002-04-11
; PRIOR APPLICATION NUMBER: 60/255,021
; PRIOR FILING DATE: 2000-12-12
; NUMBER OF SEQ ID NOS: 11
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 8
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This amino acid sequence is an synthetic analog of "growth hormone
; OTHER INFORMATION: e releasing hormone" ("GHRH").
US-10-021-403A-8

Query Match 100.0%; Score 198; DB 14; Length 40;
Best Local Similarity 100.0%; Pred. No. 2.1e-20;
Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40
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Db 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40

RESULT 4

US-10-262-141-1
; Sequence 1, Application US/10262141
; Publication No. US20030129172A1
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert
; TITLE OF INVENTION: Super-Active Porcine Growth Hormone Releasing Hormone Analog
; FILE REFERENCE: P01857US1
; CURRENT APPLICATION NUMBER: US/10/262,141
; CURRENT FILING DATE: 2002-09-20
; PRIOR APPLICATION NUMBER: US 60/145,624
; PRIOR FILING DATE: 1999-07-26
; PRIOR APPLICATION NUMBER: PCT/US00/20127
; PRIOR FILING DATE: 2000-07-24
; NUMBER OF SEQ ID NOS: 14
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 1
; LENGTH: 40

; TYPE: PRT
; ORGANISM: Artificial sequence
; FEATURE:
; OTHER INFORMATION: Hormone
US-10-262-141-1

Query Match 100.0%; Score 198; DB 14; Length 40;
Best Local Similarity 100.0%; Pred. No. 2.1e-20;
Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40
|||
Db 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40

RESULT 5

US-10-262-377-1
; Sequence 1, Application US/10262377
; Publication No. US20030148948A1
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert
; TITLE OF INVENTION: Super-Active Porcine Growth Hormone Releasing Hormone Analog
; FILE REFERENCE: P01857US1
; CURRENT APPLICATION NUMBER: US/10/262,377
; CURRENT FILING DATE: 2000-07-24
; PRIOR APPLICATION NUMBER: US 60/145,624
; PRIOR FILING DATE: 1999-07-26
; PRIOR APPLICATION NUMBER: PCT/US00/20127
; PRIOR FILING DATE: 2000-07-24
; NUMBER OF SEQ ID NOS: 14
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 1
; LENGTH: 40
; TYPE: PRT
; ORGANISM: Artificial sequence
; FEATURE:
; OTHER INFORMATION: Hormone
US-10-262-377-1

Query Match 100.0%; Score 198; DB 14; Length 40;
Best Local Similarity 100.0%; Pred. No. 2.1e-20;
Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40
|||
Db 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40

RESULT 6

US-10-395-709-1
; Sequence 1, Application US/10395709
; Publication No. US20040014645A1
; GENERAL INFORMATION:
; APPLICANT: Advisys
; TITLE OF INVENTION: INCREASED DELIVERY OF A NUCLEIC ACID CONSTRUCT IN VIVO BY THE
; FILE REFERENCE: GLUTAMATE ("PLG") SYSTEM
; FILE REFERENCE: 108328.00115 - AVSI-0021P1
; CURRENT APPLICATION NUMBER: US/10/395,709
; CURRENT FILING DATE: 2003-03-24
; NUMBER OF SEQ ID NOS: 25
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 1
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is a functional biological equivalent of GHRH.
US-10-395-709-1

Query Match 100.0%; Score 198; DB 15; Length 40;
Best Local Similarity 100.0%; Pred. No. 2.1e-20;
Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQA 40
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Db 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQA 40

RESULT 7
US-10-359-919A-3
; Sequence 3, Application US/10359919A
; Publication No. US20040038918A1
; GENERAL INFORMATION:
; APPLICANT: Baylor College of Medicine
; TITLE OF INVENTION: Modified Pituitary Gland Development in offspring from Expectant
; FILE OF INVENTION: animals treated with GHRH
; FILE REFERENCE: 108328.00087 - AVSI-0019
; CURRENT APPLICATION NUMBER: US/10/359,919A
; CURRENT FILING DATE: 2003-02-06
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is a growth hormone releasing hormone ("GHRH") analog.
US-10-359-919A-3

Query Match 97.0%; Score 192; DB 12; Length 40;
Best Local Similarity 97.5%; Pred. No. 1.4e-19;
Matches 39; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQA 40
|||||
Db 1 YVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQA 40

RESULT 8
US-10-315-907A-3
; Sequence 3, Application US/10315907A
; Publication No. US20040057941A1
; GENERAL INFORMATION:
; APPLICANT: Advisys
; TITLE OF INVENTION: PLASMID MEDIATED SUPPLEMENTATION FOR TREATING CHRONICALLY ILL SUE
; FILE REFERENCE: 108328.00073 - AVSI-0007
; CURRENT APPLICATION NUMBER: US/10/315,907A
; CURRENT FILING DATE: 2002-12-10
; NUMBER OF SEQ ID NOS: 25
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is a GHRH analog.
US-10-315-907A-3

Query Match 97.0%; Score 192; DB 12; Length 40;
Best Local Similarity 97.5%; Pred. No. 1.4e-19;
Matches 39; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQA 40
|||||
Db 1 YVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQA 40

RESULT 9
US-10-395-709-3
; Sequence 3, Application US/10395709
; Publication No. US20040014645A1
; GENERAL INFORMATION:
; APPLICANT: Advisys
; TITLE OF INVENTION: INCREASED DELIVERY OF A NUCLEIC ACID CONSTRUCT IN VIVO BY THE POI
; FILE OF INVENTION: GLUTAMATE ("PLG") SYSTEM

; FILE REFERENCE: 108328.00115 - AVSI-0021P1
; CURRENT APPLICATION NUMBER: US/10/395,709
; CURRENT FILING DATE: 2003-03-24
; NUMBER OF SEQ ID NOS: 25
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is a functional biological equivalent of GHRH.
US-10-395-709-3

Query Match 97.0%; Score 192; DB 15; Length 40;
Best Local Similarity 97.5%; Pred. No. 1.4e-19;
Matches 39; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQA 40
|||||
Db 1 YVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQA 40

RESULT 10
US-10-359-919A-2
; Sequence 2, Application US/10359919A
; Publication No. US20040038918A1
; GENERAL INFORMATION:
; APPLICANT: Baylor College of Medicine
; TITLE OF INVENTION: Modified Pituitary Gland Development in offspring from Expectant
; FILE OF INVENTION: animals treated with GHRH
; FILE REFERENCE: 108328.00087 - AVSI-0019
; CURRENT APPLICATION NUMBER: US/10/359,919A
; CURRENT FILING DATE: 2003-02-06
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 2
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is a growth hormone releasing hormone ("GHRH") analog.
US-10-359-919A-2

Query Match 96.5%; Score 191; DB 12; Length 40;
Best Local Similarity 95.0%; Pred. No. 2e-19;
Matches 38; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQA 40
:|||
Db 1 YVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQA 40

RESULT 11
US-10-315-907A-2
; Sequence 2, Application US/10315907A
; Publication No. US20040057941A1
; GENERAL INFORMATION:
; APPLICANT: Advisys
; TITLE OF INVENTION: PLASMID MEDIATED SUPPLEMENTATION FOR TREATING CHRONICALLY ILL SUE
; FILE REFERENCE: 108328.00073 - AVSI-0007
; CURRENT APPLICATION NUMBER: US/10/315,907A
; CURRENT FILING DATE: 2002-12-10
; NUMBER OF SEQ ID NOS: 25
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 2
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is a GHRH analog.
US-10-315-907A-2

Query Match 96.5%; Score 191; DB 12; Length 40;

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; APPLICANT: Advisys
; TITLE OF INVENTION: PLASMID MEDIATED SUPPLEMENTATION FOR TREATING CHRONICALLY ILL SUB
; FILE REFERENCE: 108328.00073 - AVSI-0007
; CURRENT APPLICATION NUMBER: US/10/315,907A
; CURRENT FILING DATE: 2002-12-10
; NUMBER OF SEQ ID NOS: 25
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 4
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is a GHRH analog.
US-10-315-907A-4

Query Match          94.9%; Score 188; DB 12; Length 40;
Best Local Similarity 95.0%; Pred. No. 5.3e-19;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy      1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQGGERNQEQGA 40
      :|||||
Db      1 YADAIFTNSYRKVLAQLSARKLLQDILNRQGGERNQEQGA 40
      :|||||

RESULT 15
US-10-395-709-4
; Sequence 4, Application US/10395709
; Publication No. US20040014645A1
; GENERAL INFORMATION:
; APPLICANT: Advisys
; TITLE OF INVENTION: INCREASED DELIVERY OF A NUCLEIC ACID CONSTRUCT IN VIVO BY THE PO
; FILE REFERENCE: 108328.00115 - AVSI-0021P1
; CURRENT APPLICATION NUMBER: US/10/395,709
; CURRENT FILING DATE: 2003-03-24
; NUMBER OF SEQ ID NOS: 25
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 4
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is a functional biological equivalent of GHRH.
US-10-395-709-4

Query Match          94.9%; Score 188; DB 15; Length 40;
Best Local Similarity 95.0%; Pred. No. 5.3e-19;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy      1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQGGERNQEQGA 40
      :|||||
Db      1 YADAIFTNSYRKVLAQLSARKLLQDILNRQGGERNQEQGA 40
      :|||||

Search completed: July 12, 2004, 20:57:45
Job time : 42.5 secs
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Best Local Similarity 95.0%; Pred. No. 2e-19;
Matches 38; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

Qy      1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQGGERNQEQGA 40
      :|||||
Db      1 YIDAIFTNSYRKVLAQLSARKLLQDILNRQGGERNQEQGA 40
      :|||||

RESULT 12
US-10-395-709-2
; Sequence 2, Application US/10395709
; Publication No. US20040014645A1
; GENERAL INFORMATION:
; APPLICANT: Advisys
; TITLE OF INVENTION: INCREASED DELIVERY OF A NUCLEIC ACID CONSTRUCT IN VIVO BY THE PO
; FILE REFERENCE: 108328.00115 - AVSI-0021P1
; CURRENT APPLICATION NUMBER: US/10/395,709
; CURRENT FILING DATE: 2003-03-24
; NUMBER OF SEQ ID NOS: 25
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 2
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is a functional biological equivalent of GHRH.
US-10-395-709-2

Query Match          96.5%; Score 191; DB 15; Length 40;
Best Local Similarity 95.0%; Pred. No. 2e-19;
Matches 38; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

Qy      1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQGGERNQEQGA 40
      :|||||
Db      1 YIDAIFTNSYRKVLAQLSARKLLQDILNRQGGERNQEQGA 40
      :|||||

RESULT 13
US-10-359-919A-4
; Sequence 4, Application US/10359919A
; Publication No. US20040036918A1
; GENERAL INFORMATION:
; APPLICANT: Baylor College of Medicine
; TITLE OF INVENTION: Modified Pituitary Gland Development in offspring from Expectant
; FILE REFERENCE: 108328.00087 - AVSI-0019
; CURRENT APPLICATION NUMBER: US/10/359,919A
; CURRENT FILING DATE: 2003-02-06
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 4
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is a growth hormone releasing hormone ("GHRH") analog.
US-10-359-919A-4

Query Match          94.9%; Score 188; DB 12; Length 40;
Best Local Similarity 95.0%; Pred. No. 5.3e-19;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy      1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQGGERNQEQGA 40
      :|||||
Db      1 YADAIFTNSYRKVLAQLSARKLLQDILNRQGGERNQEQGA 40
      :|||||

RESULT 14
US-10-315-907A-4
; Sequence 4, Application US/10315907A
; Publication No. US20040057941A1
; GENERAL INFORMATION:
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GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: July 12, 2004, 20:46:47 ; Search time 13 Seconds
(without alignments)
295.974 Million cell updates/sec

Title: US-10-021-403A-8

Perfect score: 198

Sequence: 1 HVDAFTNSYRKVLQAQLSARKLLQDILNRQOGERNQEGA 40

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 283366 seqs, 96191526 residues

Total number of hits satisfying chosen parameters: 283366

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

PIR 78:*

1: pir1:*

2: pir2:*

3: pir3:*

4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	182	91.9	44	1 RHOS	somatoliberin - bo
2	177	89.4	44	1 RHFG	somatoliberin - pi
3	167	84.3	108	1 RHUS	somatoliberin prec
4	154	77.8	104	2 A32731	somatoliberin prec
5	134.5	67.9	103	2 A41410	somatoliberin prec
6	82	41.4	173	2 S34767	neuropeptides prec
7	81	40.9	28	2 A38232	vasoactive intesti
8	79	39.9	55	1 VRGP	vasoactive intesti
9	77	38.9	145	2 A60038	vasoactive intesti
10	77	38.9	170	1 VRHU	vasoactive intesti
11	77	38.9	175	2 A37786	vasoactive intesti
12	76.5	38.6	170	1 VVRT	pituitary adenyliat
13	76.5	38.6	170	2 A60037	vasoactive intesti
14	76	38.4	55	1 VRBO	vasoactive intesti
15	76	38.4	55	1 VRSH	vasoactive intesti
16	74.5	37.6	165	1 VRCH	vasoactive intesti
17	73	36.9	195	2 I50456	pituitary adenyliat
18	72	36.4	35	1 HWGHD	exendin-2 - Gila m
19	72	36.4	55	1 VRPB	vasoactive intesti
20	72	36.4	58	1 VRPG	vasoactive intesti
21	70	35.4	28	2 B60071	vasoactive intesti
22	70	35.4	28	2 A60304	vasoactive intesti
23	70	35.4	38	1 HWGHS	vasoactive intesti
24	70	35.4	38	2 A61070	exendin-1 - Mexica
25	70	35.4	176	2 A34044	pituitary adenyliat
26	70	35.4	176	2 A34044	pituitary adenyliat
27	65	32.8	38	2 A49165	pituitary adenyliat
28	62.5	31.6	178	2 I51058	glucagon I precurs
29	62.5	31.6	178	2 I51057	glucagon II precur

30	62	31.3	28	2 A60303	vasoactive intesti
31	59	29.8	206	2 I51301	proglucagon - chic
32	58	29.3	25	2 JQ0361	vasoactive intesti
33	58	29.3	27	2 A61071	pituitary adenyliat
34	58	29.3	412	2 F69796	sugar-binding prot
35	58	29.3	520	2 S45497	hydroxymethylgluta
36	58	29.3	520	2 S27197	hydroxymethylgluta
37	57	28.8	300	2 F84594	hypothetical prote
38	56.5	28.5	1377	2 C70148	DNA-directed RNA p
39	56	28.3	181	2 S42380	hypothetical prote
40	55	27.8	537	2 E96606	hypothetical prote
41	54.5	27.5	724	2 S42868	serine/threonine p
42	54	27.3	520	2 S12736	hydroxymethylgluta
43	53	26.8	27	1 SECH	secretin - chicken
44	53	26.8	31	2 S44472	glucagon G2 - Nort
45	53	26.8	151	1 GCCH	glucagon precursor

ALIGNMENTS

RESULT 1

RHOS

somatoliberin - bovine

N;Alternate names: growth hormone-releasing factor

C:Species: Bos primigenius taurus (cattle)

C>Date: 28-Aug-1985 #sequence_revision 28-Aug-1985 #text_change 21-Nov-1997

C:Accession: A01554

R;Esch, F.; Bohlen, P.; Ling, N.; Brazeau, P.; Guillemin, R.

Biochem. Biophys. Res. Commun. 117, 772-779, 1983

A;Title: Isolation and characterization of the bovine hypothalamic growth hormone release

A;Reference number: A01554; PMID:84127993; PMID:6421287

A;Accession: A01554

A;Molecule type: protein

A;Residues: 1-44 <ESC>

C;Comment: This protein was isolated from hypothalamus.

C;Superfamily: glucagon

C;Keywords: amidated carboxyl end; duplication; hypothalamus

F:44/Modified site: amidated carboxyl end (Leu) #status experimental

Query Match

Best Local Similarity 91.9%; Score 182; DB 1; Length 44;

Matches 36; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 HVDAFTNSYRKVLQAQLSARKLLQDILNRQOGERNQEGA 40

Db 1 YADAFTNSYRKVLQAQLSARKLLQDILNRQOGERNQEGA 40

RESULT 2

RHPG

somatoliberin - pig

N;Alternate names: growth hormone-releasing factor

C:Species: Sus scrofa domestica (domestic pig)

C>Date: 28-Aug-1985 #sequence_revision 28-Aug-1985 #text_change 21-Nov-1997

C:Accession: A01553

R;Bohlen, P.; Esch, F.; Brazeau, P.; Ling, N.; Guillemin, R.

Biochem. Biophys. Res. Commun. 116, 726-734, 1983

A;Title: Isolation and characterization of the porcine hypothalamic growth hormone relea

A;Reference number: A01553; PMID:84079886; PMID:6418166

A;Accession: A01553

A;Molecule type: protein

A;Residues: 1-44 <BOH>

C;Comment: The carboxyl-amidated somatoliberin is twice as active as that having a free

C;Comment: This protein was isolated from hypothalamus.

C;Superfamily: glucagon

C;Keywords: amidated carboxyl end; duplication; hypothalamus

F:44/Modified site: amidated carboxyl end (Leu) #status experimental

Query Match

Best Local Similarity 89.4%; Score 177; DB 1; Length 44;

Matches 35; Conservative 3; Mismatches 2; Indels 0; Gaps 0;

F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-31/Domain: propeptide #status predicted <PRP>
F;32-75/Product: somatoliberin #status experimental <SUB>
F;76-100/Domain: somatoliberin propeptide #status predicted <CTP>

1

Query Match
Best Local Similarity 84.3%; Score 167; DB 1; Length 100;
Matches 33; Conservative 4; Mismatches 3; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQAQLSARKLLQDILNRQQGERNQEQA 40
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Db 32 YADAIFTNSYRKVLGQLSARKLLQDILMSRQQGSNQRGA 71
 | | | | |

RESULT 4
A32731
somatoliblerin precursor - rat
N:Alternate names: growth hormone-releasing hormone
C:Species: Rattus norvegicus (Norway rat)
C>Date: 13-Jul-1990 #sequence_revision 13-Jul-1990 #text_change 16-Jul-1999
C:Accession: A32731; A41366; I67421
R:Mayo, K.E.; Cerelli, G.M.; Rosenfeld, M.G.; Evans, R.M.
Nature 314, 464-467, 1985
A>Title: Characterization of cDNA and genomic clones encoding the precursor to rat hypophyseal growth hormone releasing hormone gene in placenta is directed by a promoter containing a TATA box
A:Reference number: A32731; MUID:85163769; PMID:3920534
A:Accession: A32731
A>Status: preliminary
A:Molecule type: DNA
A:Residues: 1-104 <MAY>
R:Gonzalez-Crespo, S.; Boronati, A.
Proc. Natl. Acad. Sci. U.S.A. 88, 8749-8753, 1991
A>Title: Expression of the rat growth hormone-releasing hormone gene in placenta is directed by a promoter containing a TATA box
A:Reference number: A41366; MUID:92020929; PMID:1924334
A:Accession: A41366
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-104 <GON>
A:Cross-references: GB:X02320
R:Gonzalez-Crespo, S.; Boronati, A.
Proc. Natl. Acad. Sci. U.S.A. 88, 8749-8753, 1991
A>Title: Expression of the rat growth hormone-releasing hormone gene in placenta is directed by a promoter containing a TATA box
A:Reference number: A41366; MUID:92020929; PMID:1924334
A:Accession: A41366
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-104 <RES>
R:Srivastava, C.H.; Monts, B.S.; Rothrock, J.K.; Peredo, M.J.; Pescovitz, O.H.
Endocrinology 136, 1502-1508, 1995
A>Title: Presence of a spermatogenic-specific promoter in the rat growth hormone-releasing hormone gene
A:Reference number: I53290; MUID:95203210; PMID:7895659
A:Accession: I67421
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-104 <RES>
A:Cross-references: EMBL:U10156; NID:G498584; PIDN:AAC52184.1; PID:G498585
C:Genetics:
A:Gene: GHRRH
C:Superfamily: glucagon
C:Keywords: duplication

Query Match
Best Local Similarity 77.8%; Score 154; DB 2; Length 104;
Matches 29; Conservative 5; Mismatches 4; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQAQLSARKLLQDILNRQQGERNQEQA 38
 | | | | |
Db 31 HADAIFTSSYRIIGQLYARLLHEIMNRQQGERNQEQ 68
 | | | | |

RESULT 5
A41410
somatoliblerin precursor - mouse
N:Alternate names: growth hormone-releasing hormone precursor
C:Species: Mus musculus (house mouse)
C>Date: 03-Apr-1992 #sequence_revision 03-Apr-1992 #text_change 16-Jul-1999
C:Accession: A41410
R:Frohman, M.A.; Downs, T.R.; Chomczynski, P.; Frohman, L.A.
Mol. Endocrinol. 3, 1529-1536, 1989
A>Title: Cloning and characterization of mouse growth hormone-releasing hormone (GRH) cDNA

Mol. Endocrinol. 3, 1529-1536, 1989


```
Query Match      38.4%; Score 76; DB 1; Length 55;
Best Local Similarity 42.9%; Pred NO, 0.0046; 7; Indels
Matches 12; Conservative 9; Mismatches 0; Gaps 0;
```

QY 1 HVDAITFNSYRKVLQAQLSARKLLQDILN 28
| | : | : | : | : | : | :
DB 1 HADGVFTSDYSRLGQLSAKKYLESLIH 28

Search completed: July 12, 2004, 20:53:07
Job time : 14 secs

QY
1 HVDAIFTSVRKVL AQLSARKLLQDILN 28
| | : | | : | | : | | :
nb
1 HADGVFTSDYSRLLGOLSAKKYLESLIH 28

GenCore version 5.1.1.6
Copyright (c) 1993 - 2004 Compugen Ltd.

OM protein - protein search, using sw model

Run on: July 12, 2004, 20:42:46 ; Search time 10 Seconds
(without alignments)
208.281 Million cell updates/sec

Title: US-10-021-403A-8

Perfect score: 198

Sequence: 1 HVDAIFTSYRKVLQSLARKLLQDILNRQGERNOEQGA 40

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 141681 seqs, 52070155 residues

Total number of hits satisfying chosen parameters: 141681

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : SwissProt_42.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query %	Match	Length	DB	ID	Description
1	182	91.9	106	1	SLIB_BOVIN	P01288	bos taurus
2	181	91.4	44	1	SLIB_SHEEP	P07217	ovis aries
3	177	89.4	44	1	SLIB_PIG	P01287	sus scrofa
4	168	84.8	107	1	SLIB_MESAU	Q60549	mesocricetu
5	167	84.3	108	1	SLIB_HUMAN	P01286	homo sapien
6	154	77.8	104	1	SLIB_RAT	P09916	rattus norv
7	134.5	67.9	103	1	SLIB_MOUSE	P16043	mus muscullu
8	82	41.4	173	1	PACA_ONCNE	P41585	oncorhynchu
9	81	40.9	28	1	PACA_CHICK	P41534	g glucagon-
10	81	40.9	28	1	VIP_DIDMA	P39089	didelphis m
11	81	40.9	45	1	SLIB_CYPCA	P42692	cyprinus ca
12	78	39.4	72	1	VIP_CAVPO	P04566	cavia porce
13	78	39.4	175	1	PACA_MOUSE	O70176	m pituitary
14	77	38.9	170	1	VIP_HUMAN	P01282	homo sapien
15	77	38.9	175	1	PACA_RAT	P13589	r pituitary
16	76.5	38.6	170	1	VIP_MOUSE	P32648	mus muscullu
17	76.5	38.6	170	1	VIP_RAT	P01283	rattus norv
18	75	37.9	72	1	VIP_BOVIN	P81401	bos taurus
19	74.5	37.6	200	1	VIP_CHICK	P48143	gallus gall
20	74.5	37.6	200	1	VIP_MELGA	P45644	meleagris g
21	73	36.9	195	1	PACA_CLAMA	P48144	clarias mac
22	72	36.4	35	1	EXE1_HELNU	P04204	heloderma s
23	72	36.4	266	1	GLUC_XENLA	O42143	xenopus lae
24	71	35.9	72	1	VIP_PIG	P01284	sus scrofa
25	71	35.9	72	1	VIP_RABIT	P32649	oryctolagus
26	70	35.4	28	1	VIP_SHEEP	P04565	ovis aries
27	70	35.4	38	1	EXE1_HELNU	P04203	heloderma s
28	70	35.4	73	1	PACA_PIG	P41535	s pituitary
29	70	35.4	171	1	PACA_RANRI	Q09169	r glucagon-
30	70	35.4	176	1	PACA_HUMAN	P18509	h pituitary
31	70	35.4	176	1	PACA_SHEEP	P16613	o pituitary
32	67	33.8	38	1	PACA_URAJA	P81039	uranoscopus
33	62	31.3	28	1	VIP_SCYCA	P09685	scyllorhinu

34	61.5	31.1	248	1	RSRL_CANAL	P52498	candida alb
35	61	30.8	28	1	VIP_ALIMI	P48142	alligator m
36	61	30.8	28	1	VIP_RANRI	P81016	rana ridibu
37	59	29.8	206	1	GLUC_CHICK	P01277	gallus gall
38	58	29.3	25	1	VIP_GADMO	P09684	gadus morhu
39	58	29.3	204	1	GLUC_HELNU	O12956	heloderma s
40	58	29.3	520	1	HMCS_HUMAN	Q01581	homo sapien
41	56.5	28.5	1377	1	RPOC_BORBU	O51349	borrelia bu
42	56	28.3	181	1	YNV2_CAEEL	P34565	caenorhabdi
43	54	27.3	520	1	HMCS_RAT	P17425	rattus norv
44	53	26.8	27	1	SECR_CHICK	P01280	gallus gall
45	52	26.3	81	1	VPU_HVIB1	P05920	human immu

ALIGNMENTS

RESULT 1
SLIB_BOVIN STANDARD; PRT; 106 AA.
ID AC P01288; Q9MZD4;
DT 21-JUL-1986 (Rel. 01, Created)
DT 16-OCT-2001 (Rel. 40, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Somatoliberin precursor (Growth hormone-releasing factor) (GRF)
GN GHRH.
OS Bos taurus (Bovine), and
OC Capra hircus (Goat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC Bovidae; Bovinae; Bos.
OX NCBI_TaxID=9913, 9925;
RN [1] _SEQUENCE FROM N.A.
RC SPECIES=Bovine;
RA Zhou P., Kazmer G.W., Yang X.;
RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.
RN [2]
RP SEQUENCE OF 31-74.
RC SPECIES=Bovine;
RX MEDLINE=84127993; PubMed=6421287;
RA Esch F., Boehlen P., Ling N., Brazeau P., Guillemin R.;
RT "Isolation and characterization of the bovine hypothalamic growth hormone releasing factor.";
RL Biochem. Biophys. Res. Commun. 117:772-779(1983).
RN [3]
RP SEQUENCE OF 31-74.
RC SPECIES=C.hircus;
RX MEDLINE=85096956; PubMed=6440561;
RA Brazeau P., Boehlen P., Esch F., Ling N., Wehrenberg W.B., Guillemin R.;
RT "Growth hormone-releasing factor from ovine and caprine hypothalamus: isolation, sequence analysis and total synthesis.";
RL Biochem. Biophys. Res. Commun. 125:606-614(1984).
CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the adenohipophyse to stimulate the secretion of growth hormone.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- SIMILARITY: Belongs to the glucagon family.
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CC -----
CC EMBL; AF242855; AAR89171.1; -;
CC InterPro; IPR000532; Glucagon.
CC Pfam; PF00123; hormone2; 1.
CC SMART; SMO0070; GLUCA; 1.
CC PROSITE; PS00260; GLUCAGON; 1.
CC -----

```
KW Glucagon family; Signal; Amidation; Hypothalamus.
FT SIGNAL 1 19 POTENTIAL.
FT PEPTIDE 31 74 SOMATOLIBERIN.
FT MOD RES 74 74 AMIDATION (G-75 PROVIDE AMIDE GROUP).
SQ SEQUENCE 106 AA; 12058 MW; 6584F4F25ABEF178 CRC64;

Query Match 91.9%; Score 182; DB 1; Length 106;
Best Local Similarity 90.0%; Pred. NO. 1.2e-17; Indels 0; Gaps 0;
Matches 36; Conservative 2; Mismatches 2;

QY 1 HVDAIFTNSYRKVLQALSARKLLQDILNRQOGERNQEQGA 40
Db 31 YADAIFTNSYRKVLQALSARKLLQDILNRQOGERNQEQGA 70

RESULT 2
SLIB SHEEP STANDARD; PRT; 44 AA.
AC P07217;
DT 01-APR-1988 (Rel. 07, Created)
DT 01-APR-1988 (Rel. 07, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Somatoliberin (Growth hormone-releasing factor) (GRF) (Growth hormone-releasing hormone) (GHRH).
GN GHRH.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; Caprinae; Ovis.
OX NCBI_TaxID=9940;
RN [1]
RX MEDLINE=85096956; PubMed=6440561;
RA Brazeau P., Boehlen P., Esch F., Ling N., Wehrenberg W.B., Guillemin R.;
RT "Growth hormone-releasing factor from ovine and caprine hypothalamus: isolation, sequence analysis and total synthesis.";
RL Biochem. Biophys. Res. Commun. 125:606-614(1984).
CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the adenylophypophyse to stimulate the secretion of growth hormone.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- SIMILARITY: Belongs to the glucagon family.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 1.
DR SMART: SM00070; GLUCA; 1.
DR PROSITE; PS00260; GLUCAGON; 1.
KW Glucagon family; Amidation; Hypothalamus.
FT MOD RES 44 44 AMIDATION.
FT MOD RES 44 44
SQ SEQUENCE 44 AA; 5123 MW; 9F907C6769F48030 CRC64;

Query Match 91.4%; Score 181; DB 1; Length 44;
Best Local Similarity 87.5%; Pred. NO. 6.4e-18; Indels 0; Gaps 0;
Matches 35; Conservative 3; Mismatches 2;

QY 1 HVDAIFTNSYRKVLQALSARKLLQDILNRQOGERNQEQGA 40
Db 1 YADAIFTNSYRKVLQALSARKLLQDILNRQOGERNQEQGA 40

RESULT 3
SLIB PIG STANDARD; PRT; 44 AA.
AC P01287;
DT 21-JUL-1986 (Rel. 01, Created)
DT 21-JUL-1986 (Rel. 01, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Somatoliberin (Growth hormone-releasing factor) (GRF) (Growth hormone-releasing hormone) (GHRH).
GN GHRH.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
OX NCBI_TaxID=9823;
```

```
RN [1]
RP TISSUE=Hypothalamus;
RC MEDLINE=84079886; PubMed=6418166;
RX Boehlen P., Esch F., Brazeau P., Ling N., Guillemin R.;
RT "Isolation and characterization of the porcine hypothalamic growth hormone releasing factor.";
RL Biochem. Biophys. Res. Commun. 116:726-734(1983).
CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the adenylophypophyse to stimulate the secretion of growth hormone.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- MISCELLANEOUS: The carboxyl-amidated somatoliberin is twice as active as that having a free carboxyl end.
CC -!- SIMILARITY: Belongs to the glucagon family.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 1.
DR SMART: SM00070; GLUCA; 1.
DR PROSITE; PS00260; GLUCAGON; 1.
KW Glucagon family; Amidation; Hypothalamus.
FT MOD RES 44 44 AMIDATION.
FT MOD RES 44 44
SQ SEQUENCE 44 AA; 5110 MW; 1271DC7059F4802E CRC64;

Query Match 89.4%; Score 177; DB 1; Length 44;
Best Local Similarity 87.5%; Pred. NO. 2.2e-17; Indels 0; Gaps 0;
Matches 35; Conservative 3; Mismatches 2;

QY 1 HVDAIFTNSYRKVLQALSARKLLQDILNRQOGERNQEQGA 40
Db 1 YADAIFTNSYRKVLQALSARKLLQDILNRQOGERNQEQGA 40

RESULT 4
SLIB MESAU STANDARD; PRT; 107 AA.
ID SLIB MESAU
AC Q60549;
DT 15-JUL-1998 (Rel. 36, Created)
DT 15-JUL-1998 (Rel. 36, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Somatoliberin precursor (Growth hormone-releasing factor) (GRF) (Growth hormone-releasing hormone) (GHRH).
GN GHRH OR GRF.
OS Mesocricetus auratus (Golden hamster).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae; Mesocricetus.
OX NCBI_TaxID=10036;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Hypothalamus;
RX MEDLINE=95218216; PubMed=7703510;
RA Ono M., Miki N., Demura H., Tadokoro K., Nagafuchi S., Yamada M.;
RT "Molecular cloning of cDNA encoding the precursor for hamster hypothalamic growth hormone-releasing factor.";
RL DNA Seq. 5:93-102(1994).
CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the adenylophypophyse to stimulate the secretion of growth hormone.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- SIMILARITY: Belongs to the glucagon family.
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CC
CC EMBL; D23671; BAA04901.1; -.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 1.
DR SMART: SM00070; GLUCA; 1.
DR PROSITE; PS00260; GLUCAGON; 1.
```

KW Glucagon family; Signal; Amidation; Hypothalamus.
FT SIGNAL 1 19 POTENTIAL.
FT PEPTIDE 31 74 SOMATOLIBERIN.
FT MOD_RES 74 74 AMIDATION (G-75 PROVIDE AMIDE GROUP) (BY
SQ SEQUENCE 107 AA; 12298 MW; 3DEFA8D4B3F7636 CRC64;
Query Match 84.8%; Score 168; DB 1; Length 107;
Best Local Similarity 84.8%; Pred. No. 9.6e-16;
Matches 33; Conservative 4; Mismatches 2; Indels 0; Gaps 0;
QY 1 HVDAIFTSYKVKLAQLSARKLQDILNRQGGERNQEQG 39
Db 31 YADAIFTSSYKVLGSLARKLQDILNRQGGERNQEQG 69
RESULT 5
SLIB_HUMAN STANDARD; PRT; 108 AA.
AC P01286;
DT 21-JUL-1986 (Rel. 01, Created)
DT 21-JUL-1986 (Rel. 01, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Somatoliberin precursor (Growth hormone-releasing factor) (GRF)
DE (Growth hormone-releasing hormone) (GHRH) (Somatocortin) (Sermorelin).
GN GHRH OR GHRF.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=83273612; PubMed=6192430;
RA Gubler U., Monahan J.J., Lomedico P.T., Bhatt R.S., Collier K.J.,
RA Hoffman B.J., Boehlen P., Esch F., Ling N., Zeytin F., Brazeau P.,
RA Poonian M.S., Gage L.P.;
RT "Cloning and sequence analysis of cDNA for the precursor of human
RT growth hormone-releasing factor, somatocortin".
RL Proc. Natl. Acad. Sci. U.S.A. 80:4311-4314(1983).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=85113171; PubMed=3918305;
RA Mayo K.E., Cerelli G.M., Lebo R.V., Bruce B.D., Rosenfeld M.G.,
RA Evans R.M.;
RT "Gene encoding human growth hormone-releasing factor precursor:
RT structure, sequence, and chromosomal assignment".
RL Proc. Natl. Acad. Sci. U.S.A. 82:63-67(1985).
RN [3]
RP SEQUENCE FROM N.A.
RX MEDLINE=21638749; PubMed=11780052;
RA Deloukas P., Matthews L.H., Ashurst J., Burton J., Gilbert J.G.R.,
RA Jones M., Stavrides G., Almeida J.P., Babbage A.K., Baggeley C.L.,
RA Bailey J., Barlow K.F., Bates K.N., Beard L.M., Beare D.M.,
RA Beasley O.P., Bird C.P., Blakey S.E., Bridgeman A.M., Brown A.J.,
RA Buck D., Burrill W.D., Butler A.P., Carder C., Carter N.P.,
RA Chapman J.C., Clamp M., Clark G., Clark L.N., Clark S.V., Clee C.M.,
RA Clegg S., Cobley V.E., Collier R.E., Connor R.E., Corby N.R.,
RA Coulson A., Coville G.J., Deadman R., Dhami P.D., Dunn M.,
RA Ellington A.G., Frankland J.A., Fraser A., French L., Garner P.,
RA Grahnam D.V., Griffiths C., Griffiths M.N.D., Gwilliam R., Hall R.E.,
RA Hammond S., Harley J.L., Heath P.D., Ho S., Holden J.L., Howden P.J.,
RA Huckle E., Hunt A.R., Hunt S.E., Jekosch K., Johnson C.M., Johnson D.,
RA Kay M.P., Kimberley A.M., King A., Knights A., Laird G.K., Lawlor S.,
RA Lehesvaara M.H., Leversha M.A., Lloyd C., Lloyd D.M., Lovell J.D.,
RA Marsh V.L., Martin S.L., McConachie L.J., McEay K., McMurray A.A.,
RA Milne S.A., Mistry D., Moore M.J.F., Mullikin J.C., Nickerson T.,
RA Oliver K., Parker A., Patel R., Pearce T.A.V., Peck A.I.,
RA Phillimore B.J.C.T., Prathalingam S.R., Plumb R.W., Ramsey H.,
RA Rice C.M., Ross M.T., Scott C.E., Sehra H.K., Showkneen R., Sims S.,
RA Skuce C.D., Smith M.L., Soderlund C., Steward C.A., Sulston J.E.,
RA Swann R.M., Sycamore N., Taylor R., Tee L., Thomas D.W., Thorpe A.,
RA Tracey A., Iromans A.C., Vaudin M., Wall M., Wallis J.M.,
RA Whitehead S.L., Whittaker P., Willey D.L., Williams L., Williams S.A.,

RA Wilming L., Wray P.W., Hubbard T., Durbin R.M., Bentley D.R., Beck S.,
RA Rogers J.;
RT "The DNA sequence and comparative analysis of human chromosome 20.";
RL Nature 414:865-871(2001).
RN [4]
RP SEQUENCE OF 6-101 FROM N.A.
RX MEDLINE=84039819; PubMed=6415488;
RA Mayo K.E., Vale W., Rivier J., Rosenfeld M.G., Evans R.M.;
RT "Expression-cloning and sequence of a cDNA encoding human growth
RT hormone-releasing factor".
RL Nature 306:86-88(1983).
RN [5]
RP SEQUENCE OF 32-75.
RX MEDLINE=83016666; PubMed=6812220;
RA Guillemin R., Brazeau P., Boehlen P., Esch F., Ling N.,
RA Wehrenberg W.B.;
RT "Growth hormone-releasing factor from a human pancreatic tumor that
RT caused acromegaly".
RL Science 218:585-587(1982).
RN [6]
RP STRUCTURE BY NMR OF 32-60.
RX MEDLINE=89220972; PubMed=2854259;
RA Bruenger A.T., Clore G.M., Gronenborn A.M., Karplus M.;
RT "Solution conformations of human growth hormone releasing factor:
RT comparison of the restrained molecular dynamics and distance geometry
RT methods for a system without long-range distance data".
RL Protein Eng. 1:399-406(1987).
RN [7]
RP STRUCTURE BY NMR OF 32-60.
RX MEDLINE=87141181; PubMed=3029387;
RA Clore G.M., Martin S.R., Gronenborn A.M.;
RT "Solution structure of human growth hormone releasing factor.
RT Combined use of circular dichroism and nuclear magnetic resonance
RT spectroscopy".
RL J. Mol. Biol. 191:553-561(1986).
CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the
CC adenohypophyse to stimulate the secretion of growth hormone.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- PHARMACEUTICAL: Available under the names Geref (Serono). Geref is
CC for the treatment of growth hormone deficiency.
CC -!- SIMILARITY: Belongs to the glucagon family.
CC
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CC
CC EMBL; L29177; -; NOT ANNOTATED_CDS.
DR EMBL; L00137; AAA52608.1; -;
DR EMBL; L00134; AAA52608.1; JOINED.
DR EMBL; L00135; AAA52608.1; JOINED.
DR EMBL; L00136; AAA52608.1; JOINED.
DR EMBL; L00137; AAA52609.1; -;
DR EMBL; L00134; AAA52609.1; JOINED.
DR EMBL; L00135; AAA52609.1; JOINED.
DR EMBL; L00136; AAA52609.1; JOINED.
DR EMBL; AL031659; CAB41762.1; -;
DR EMBL; X00094; CAA24955.1; -;
DR EMBL; X00094; CAA24956.1; -;
DR PIR; A21902; RHHS.
DR Genew; HGNC:4265; GHRH.
DR MIM; 139190; -;
DR GO; GO:0005102; F:receptor binding; TAS.
DR GO; GO:0007267; P:cell-cell signaling; TAS.
DR GO; GO:0007165; P:signal transduction; TAS.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 1.
DR SMART; SM00070; GLUCA; 1.
DR PROSITE; PS00260; GLUCAGON; 1.


```
KW Glucagon family; Signal; Amidation; Hypothalamus.
FT SIGNAL 1 20
FT PEPTIDE 32 75
FT MOD RES 75 75
FT VARIANT 103 103
FT FTID=VAR_003186.
FT CONFLICT 92 92
FT SEQUENCE 108 AA; 12447 MW; 366AE05383488C53 CRC64;

Query Match 84.3%; Score 167; DB 1; Length 108;
Best Local Similarity 82.5%; Pred. No. 1.3e-15;
Matches 33; Conservative 4; Mismatches 3; Indels 0; Gaps 0;

QY 1 HVDAIFTNYSRKVLQSLARKLLQDILNRQGGERNQEQ 40
: |||||:|||||:|||||:|||||:|||||:|||||:
Db 32 YADAIFTNYSRKVLQSLARKLLQDILNRQGGERNQEQ 71

RESULT 6
SLIB_RAT
ID SLIB_RAT STANDARD; PRT; 104 AA.
AC P09916;
DT 01-MAR-1989 (Rel. 10, Created)
DT 01-FEB-1991 (Rel. 17, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Somatoliberin precursor (Growth hormone-releasing factor) (GRF)
DE (Growth hormone-releasing hormone) (GHRH).
GN GHRH.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX NCBI_TaxID=10116;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=85163768; PubMed=3920534;
RA Mayo K.E., Cerelli G.M., Rosenfeld M.G., Evans R.M.;
RT "Characterization of cDNA and genomic clones encoding the precursor
RL to rat hypothalamic growth hormone-releasing factor.";
RL Nature 314:464-467(1985).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=92020929; PubMed=1924334;
RA Gonzalez-Crespo S., Boronat A.;
RT "Expression of the rat growth hormone-releasing hormone gene in
RL placenta is directed by an alternative promoter.";
RL Proc. Natl. Acad. Sci. U.S.A. 88:8749-8753(1991).
RN [3]
RP SEQUENCE FROM N.A.
RX STRAIN=Sprague-Dawley; TISSUE=Testis;
RX MEDLINE=95203210; PubMed=7895659;
RA Srivastava C.H., Monts B.S., Rothrock J.K., Peredo M.J.,
RT Pescovitz O.H.;
RT "Presence of a spermatogenic-specific promoter in the rat growth
RL hormone-releasing hormone gene.";
RL Endocrinology 136:1502-1508(1995).
RN [4]
RP SEQUENCE OF 31-73.
RX TISSUE=Hypothalamus;
RX MEDLINE=83219259; PubMed=6406907;
RA Spies J., Rivier J., Vale W.;
RT "Characterization of rat hypothalamic growth hormone-releasing
RL factor.";
RL Nature 303:532-535(1983).
CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the
CC adenylophypophyse to stimulate the secretion of growth hormone.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- SIMILARITY: Belongs to the glucagon family.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC adenylophypophyse to stimulate the secretion of growth hormone.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- SIMILARITY: Belongs to the glucagon family.
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or send an email to license@isb-sib.ch).

EMBL; X02319; -; NOT_ANNOTATED_CDS.
DR EMBL; X02335; CAA26194.1; -.
DR EMBL; X02320; CAA26194.1; JOINED.
DR EMBL; X02321; CAA26194.1; JOINED.
DR EMBL; X02322; CAA26194.1; JOINED.
DR EMBL; W73486; AAA41220.1; -.
DR EMBL; U10156; AAC52184.1; -.
DR PIR; A32731; A32731.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 1.
DR SMART; SM00070; GLUCA; 1.
DR PROSITE; PS00260; GLUCAGON; 1.
KW Glucagon family; Signal; Hypothalamus.
FT SIGNAL 1 19
FT PEPTIDE 31 73
FT SEQUENCE 104 AA; 12266 MW; F9C17485742B2887 CRC64;

Query Match 77.8%; Score 154; DB 1; Length 104;
Best Local Similarity 76.3%; Pred. No. 7.2e-14;
Matches 29; Conservative 5; Mismatches 4; Indels 0; Gaps 0;

QY 1 HVDAIFTNYSRKVLQSLARKLLQDILNRQGGERNQEQ 38
: |||||:|||||:|||||:|||||:|||||:|||||:
Db 31 HADAIFTSSYRRILQSLARKLLHEINRQGGERNQEQ 68

RESULT 7
SLIB_MOUSE
ID SLIB_MOUSE STANDARD; PRT; 103 AA.
AC P16043;
DT 01-APR-1990 (Rel. 14, Created)
DT 01-APR-1990 (Rel. 14, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Somatoliberin precursor (Growth hormone-releasing factor) (GRF)
DE (Growth hormone-releasing hormone) (GHRH).
GN GHRH.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=90114172; PubMed=2514346;
RA Suhr S.T., Rahal J.O., Mayo K.E.;
RT "Mouse growth-hormone-releasing hormone: precursor structure and
RL expression in brain and placenta.";
RL Mol. Endocrinol. 3:1693-1700(1989).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=90114154; PubMed=2481813;
RA Frohman M.A., Downs T.R., Chomczynski P., Frohman L.A.;
RT "Cloning and characterization of mouse growth hormone-releasing
RL hormone (GRH) complementary DNA: increased GRH messenger RNA levels
RL in the growth hormone-deficient lit/lit mouse.";
RL Mol. Endocrinol. 3:1529-1536(1989).
CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the
CC adenylophypophyse to stimulate the secretion of growth hormone.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- SIMILARITY: Belongs to the glucagon family.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC or send an email to license@isb-sib.ch).

EMBL; M31654; AAA37691.1; -.
DR EMBL; M31658; AAA37739.1; -.

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isoid=P41534-3; Sequence=VSP_001759;
-- SIMILARITY: Belongs to the glucagon family.

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or send an email to license@isb-sib.ch).

EMBL; U71183; AAB51200.1; -
EMBL; U71184; AAB51201.1; -
EMBL; U71185; AAB51202.1; -
InterPro; IPR000532; Glucagon.
Pfam; PF00123; hormone2; 2.
PRINTS; PR00275; GLUCAGON.
SMART; SM00070; GLUCA; 2.
PROSITE; PS00260; GLUCAGON; 2.
Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
Amidation; Alternative splicing.
SIGNAL 1 23 POTENTIAL.
PROPEP 24 80
PEPTIDE 83 128
PEPTIDE 131 168
PEPTIDE 131 157
MOD_RES 157 157
MOD_RES 168 168
VARSPPLIC 82 114
VARSPPLIC 115 117
SEQUENCE 175 AA; 19560 MW; 0DB54995F0AA9DFB CRC64;

Query Match 41.4%; Score 82; DB 1; Length 175;
Best Local Similarity 46.9%; Pred. No. 0.00066;
Matches 15; Conservative 7; Mismatches 10; Indels 0; Gaps 0;

QY 1 HVDAIFNTSYRKVLQASLKRLQDILNRQQG 32
| | | | | | | | | | | | | | | | | |
83 HDAGIFSAYRKLLGSLARSNYLSLMAKRVG 114

RESULT 10
VIP_DIDMA STANDARD; PRT; 28 AA.
AC P39089;
DT 01-FEB-1995 (Rel. 31, Created)
DT 01-FEB-1995 (Rel. 31, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Vasoactive intestinal peptide (VIP).
GN VIP.
OS Didelphis marsupialis virginiana (North American opossum).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Metatheria; Didelphimorphia; Didelphidae; Didelphis.
NCBI_Taxid=9267;
RN [1]
RP SEQUENCE.
RX MEDLINE=92179271; PubMed=1542675;
RY Eng J., Yu J.-H., Rattan S., Yalow R.S.;
RT "Isolation and amino acid sequences of opossum vasoactive intestinal
RT polypeptide and cholecystokinin octapeptide."
RL Proc. Natl. Acad. Sci. U.S.A. 89:1809-1811(1992).
CC -!- FUNCTION: VIP causes vasodilation, lowers arterial blood pressure,
CC stimulates myocardial contractility, increases glycogenolysis and
CC relaxes the smooth muscle of trachea, stomach and gall bladder.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- SIMILARITY: Belongs to the glucagon family.
PIR; A38232; A38232.
DR InterPro: IPR000532; Glucagon.

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DB 86 ILNEAYRKVLDQLSARKYQSVVARGAGE 114

RESULT 14

VIP_HUMAN STANDARD; PRT; 170 AA.

AC P01282; Q96QK3;

DT 21-JUL-1986 (Rel. 01, Created)

DT 21-JUL-1986 (Rel. 01, Last sequence update)

DT 15-MAR-2004 (Rel. 43, Last annotation update)

DE Vasoactive intestinal peptide precursor (VIP).

GN VIP.

OS Homo sapiens (Human).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

OC NCBI_TaxID=9606;

RN [1]

RP SEQUENCE FROM N.A.

RX MEDLINE=83271523; PubMed=6571696;

RA Itoh N., Obata K.-I., Yanaihara N., Okamoto H.;

RT "Human preprovasoactive intestinal polypeptide contains a novel

RT PHI-27-like peptide, PHM-27.";

RL Nature 304:547-549(1983).

RN [2]

RP SEQUENCE FROM N.A.

RX MEDLINE=88267775; PubMed=2839091;

RA Yamagami T., Ohsawa K., Nishizawa M., Inoue C., Gotoh E.,

RA Yanaihara N., Yamamoto H., Okamoto H.;

RT "Complete nucleotide sequence of human vasoactive intestinal

RT peptide/PHM-27 gene and its inducible promoter.";

RL Ann. N.Y. Acad. Sci. 527:87-102(1988).

RN [3]

RP SEQUENCE FROM N.A.

RX MEDLINE=8604065; PubMed=3899557;

RA Tsukada T., Horovitch S.J., Montminy M.R., Mandel G., Goodman R.H.;

RT "Structure of the human vasoactive intestinal polypeptide gene.";

RL DNA 4:293-300(1985).

RN [4]

RP SEQUENCE FROM N.A.

RX MEDLINE=87092456; PubMed=3025882;

RA Linder S., Barkhem T., Norberg A., Persson H., Schalling M.,

RA Hoekfelt T., Magnusson G.;

RT "Structure and expression of the gene encoding the vasoactive

RT intestinal peptide precursor.";

RL Proc. Natl. Acad. Sci. U.S.A. 84:605-609(1987).

RN [5]

RP SEQUENCE FROM N.A.

RX MEDLINE=86016352; PubMed=2995945;

RA Delamarter J.P., Buell G.N., Kawashima E., Polak J.M., Bloom S.R.;

RT "Vasoactive intestinal peptide: expression of the prohormone in

RT bacterial cells.";

RL Peptides 6:95-102(1985).

RN [6]

RP SEQUENCE FROM N.A.

RC TISSUE=Prostate;

RX MEDLINE=22388257; PubMed=12477932;

RA Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,

RA Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,

RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,

RA Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,

RA Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,

RA Stapleton M., Soares M.B., Donald M.F., Casavant T.L., Scheetz T.E.,

RA Brownstein M.J., Udwin T.B., Toshiyuki S., Carninci P., Prange C.,

RA Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullaly S.J.,

RA Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,

RA Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,

RA Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,

RA Fahy J., Helton E., Ketterman M., Madan A., Rodrigues S., Sanchez A.,

RA Whiting M., Madan A., Young A.C., Shcherchenko Y., Bouffard G.G.,

RA Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,

RA Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,

RA Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smalilus D.E.,

RA Schnerch A., Schein J.E., Jones S.J.M., Marra M.A.;

RT "Generation and initial analysis of more than 15,000 full-length

RT human and mouse cDNA sequences.";

RL Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).

RN [7]

RP SEQUENCE OF 8-170 FROM N.A.

RX MEDLINE=86313155; PubMed=3748844;

RA Gozes I., Bodener M., Shani Y., Fridkin M.;

RT "Structure and expression of the vasoactive intestinal peptide (VIP)

RT gene in a human tumor.";

RL Peptides 7:1-6(1986).

RN [8]

RP SEQUENCE OF 50-170 FROM N.A.

RC TISSUE=Pancratic carcinoma;

RX MEDLINE=84066682; PubMed=6139527;

RA Bloom S.R., Delamarter J.F., Kawashima E., Christofides N.D.,

RA Buell G., Polak J.M.;

RT "Diarrhoea in vipoma patients associated with cosecretion of a second

RT active peptide (peptide histidine isoleucine) explained by single

RT coding gene.";

RL Lancet 2:1163-1165(1983).

RN [9]

RP SEQUENCE OF 78-155 FROM N.A.

RX MEDLINE=87140054; PubMed=2434617;

RA Gozes I., Giladi E., Shani Y.;

RT "Vasoactive intestinal peptide gene: Putative mechanism of information

RT storage at the RNA level.";

RL J. Neurochem. 47:1136-1141(1987).

RN [10]

RP SEQUENCE OF 81-122.

RX MEDLINE=88007645; PubMed=3654650;

RA Ylangou Y., di Marzo V., Spokes R.A., Panico M., Morris H.R.,

RA Bloom S.R.;

RT "Isolation, characterization, and pharmacological actions of peptide

RT histidine valine 42, a novel prepro-vasoactive intestinal peptide-

RT derived peptide.";

RL J. Biol. Chem. 262:14010-14013(1987).

RN [11]

RP SEQUENCE OF 127-152.

RC TISSUE=Pheochromocytoma;

RX MEDLINE=92287083; PubMed=1318039;

RA Kitamura K., Kangawa K., Kawamoto M., Ichiki Y., Matsuo H., Eto T.;

RT "Isolation and characterization of peptides which act on rat

RT platelets, from a pheochromocytoma.";

RL Biochem. Biophys. Res. Commun. 185:134-141(1992).

RN [12]

RP STRUCTURE BY NMR OF VIP.

RX MEDLINE=91322343; PubMed=1863695;

RA Theriault Y., Boulanger Y., St Pierre S.;

RT "Structural determination of the vasoactive intestinal peptide by

RT two-dimensional H-NMR spectroscopy.";

RL Biopolymers 31:459-464(1991).

CC -!- FUNCTION: VIP causes vasodilation, lowers arterial blood pressure,

CC stimulates myocardial contractility, increases glycohemolysis and

CC relaxes the smooth muscle of trachea, stomach and gall bladder.

CC -!- FUNCTION: PHM and PHV also cause vasodilation.

CC -!- SUBCELLULAR LOCATION: Secreted.

CC -!- SIMILARITY: Belongs to the glucagon family.

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CC -----

DR EMBL; L00157; AAA61289.1; -

DR EMBL; L00154; AAA61289.1; JOINED.

DR EMBL; L00155; AAA61289.1; JOINED.

DR EMBL; L00156; AAA61289.1; JOINED.

DR EMBL; M33027; AAA69515.1; -

DR EMBL; M11553; AAA61284.1; -

DR EMBL; M11549; AAA61284.1; JOINED.

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DR EMBL; M11550; AAA61284.1; JOINED.
DR EMBL; M11551; AAA61284.1; JOINED.
DR EMBL; M11552; AAA61284.1; JOINED.
DR EMBL; M14623; AAA61288.1; JOINED.
DR EMBL; M14619; AAA61288.1; JOINED.
DR EMBL; M14620; AAA61288.1; JOINED.
DR EMBL; M14621; AAA61288.1; JOINED.
DR EMBL; M14622; AAA61288.1; JOINED.
DR EMBL; M36610; AAA61286.1; JOINED.
DR EMBL; M36606; AAA61286.1; JOINED.
DR EMBL; M36607; AAA61286.1; JOINED.
DR EMBL; M36608; AAA61286.1; JOINED.
DR EMBL; M36609; AAA61286.1; JOINED.
DR EMBL; BC009794; AAH09794.1; -.
DR EMBL; M36634; AAA61287.1; -.
DR EMBL; M54930; AAA63268.1; -.
DR EMBL; M32162; AAA61285.1; -.
DR EMBL; M31645; AAA61285.1; JOINED.
DR PIR; A23296; VRHU.
DR Genew; HGNC:12693; VIP.
DR MIM; 192320; -.
DR GO; GO:0005184; F:neuropeptide hormone activity; TAS.
DR GO; GO:0007589; P:fluid secretion; TAS.
DR GO; GO:0007186; P:G-protein coupled receptor protein signalin. .; TAS.
DR GO; GO:0008284; P:positive regulation of cell proliferation; TAS.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 2.
DR PRINTS; PR00275; GLUCAGON.
DR SMART; SM00070; GLUCA; 2.
DR PROSITE; PS00260; GLUCAGON; 2.
KW Glucagon family; Cleavage on pair of basic residues; Signal;
KW Amidation; Hormone.
FT SIGNAL 1 20 POTENTIAL.
FT PROPEP 21 79
FT PEPTIDE 81 107
FT PEPTIDE 81 122
FT PEPTIDE 125 152
FT PROPEP 156 170
FT MOD_RES 107 107
FT MOD_RES 152 152
FT CONFLICT 96 97
FT CONFLICT 113 113
FT CONFLICT 116 116
FT CONFLICT 136 136
SQ SEQUENCE 170 AA; 19168 MW; 93EC0177F89508FD CRC64;

Query Match 38.9%; Score 77; DB 1; Length 170;
Best Local Similarity 40.0%; Pred.No. 0.003;
Matches 12; Conservative 10; Mismatches 8; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDLNLRQ 30
Db 81 HADGVFTSDFSKLLQLSARKYLSIMGR 110

RESULT 15
PACA RAT
ID PACA RAT STANDARD; PRT; 175 AA.
AC P13589;
DT 01-JAN-1990 (Rel. 13, Created)
DT 01-MAR-1992 (Rel. 21, Last sequence update)
DE 15-MAR-2004 (Rel. 43, Last annotation update)
DE Pituitary adenylate cyclase activating polypeptide precursor (PACAP)
DE [Contains: PACAP-related peptide (PRP-48); Pituitary adenylate cyclase
DE activating polypeptide-27 (PACAP-27) (PACAP27); Pituitary adenylate
DE cyclase activating polypeptide-38 (PACAP-38) (PACAP38)].
GN ADCIAP1.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX NCBI_TaxID=10116;
RN [1]
RP SEQUENCE FROM N.A.

STRAIN=Sprague-Dawley; TISSUE=Brain;
MEDLINE=91097560; PubMed=2268329;
Ogi K., Kimura C., Onda H., Arimura A., Fujino M.;
"Cloning and characterization of cDNA for the precursor of
rat pituitary adenylate cyclase activating polypeptide (PACAP).";
Biochem. Biophys. Res. Commun. 173:1271-1279(1990).
[2]
SEQUENCE FROM N.A.
STRAIN=Wistar; TISSUE=Testis;
MEDLINE=95136947; PubMed=7835287;
Hurley J.D., Gardiner J.V., Jones P.M., Bloom S.R.;
"Cloning and molecular characterization of complementary
deoxyribonucleic acid corresponding to a novel form of pituitary
adenylate cyclase-activating polypeptide messenger ribonucleic acid
in the rat testis.";
Endocrinology 136:550-557(1995).
[3]
SEQUENCE OF 131-168.
MEDLINE=90026436; PubMed=2803320;
Miyata A., Arimura A., Dahl R.R., Minamino N., Uehara A., Jiang A.,
Culler M.D., Coy D.H.;
"Isolation of a novel 38 residue-hypothalamic polypeptide which
stimulates adenylate cyclase in pituitary cells.";
Biochem. Biophys. Res. Commun. 164:567-574(1989).
-1- FUNCTION: Stimulates adenylate cyclase in pituitary cells.
-1- SUBCELLULAR LOCATION: Secreted.
-1- SIMILARITY: Belongs to the glucagon family.
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EMBL; M63006; AAA41791.1; -.
EMBL; X80290; CAA56564.1; -.
PIR; A37786; A37786.
InterPro; IPR000532; Glucagon.
Pfam; PF00123; hormone2; 2.
PRINTS; PR00275; GLUCAGON.
SMART; SM00070; GLUCA; 2.
PROSITE; PS00260; GLUCAGON; 1.
KW Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW Amidation.
FT SIGNAL 1 24 POTENTIAL.
FT PROPEP 25 78
FT PEPTIDE 81 128
FT PEPTIDE 131 157
FT PEPTIDE 131 168
FT MOD_RES 157 157
FT MOD_RES 168 168
FT CONFLICT 7 7
FT CONFLICT 26 26
SQ SEQUENCE 175 AA; 19557 MW; 039894689602B04 CRC64;

Query Match 38.9%; Score 77; DB 1; Length 175;
Best Local Similarity 58.6%; Pred.No. 0.0031;
Matches 17; Conservative 3; Mismatches 9; Indels 0; Gaps 0;

QY 5 IFTNSYRKVLAQLSARKLLQDLNLRQGE 33
Db 86 ILNEAYRKVLQSLSARKYLSQSWVARGME 114

Search completed: July 12, 2004, 20:47:13
Job time : 10 secs
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GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: July 12, 2004, 20:44:17 ; Search time 35.5 Seconds
(without alignments)
355.513 Million cell updates/sec

Title: US-10-021-403A-8

Perfect score: 198

Sequence: 1 HVDAIFTNSYRKVLQSLARKLLQDILNRQGGERNQEQGA 40

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1017041 seqs, 315518202 residues

Total number of hits satisfying chosen parameters: 1017041

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Listing first 45 summaries

Database :

SPTREMBL 25:*

- 1: sp_archaea:*
- 2: sp_bacteria:*
- 3: sp_fungi:*
- 4: sp_human:*
- 5: sp_invertebrate:*
- 6: sp_mammal:*
- 7: sp_mhc:*
- 8: sp_organelle:*
- 9: sp_phage:*
- 10: sp_plant:*
- 11: sp_rodent:*
- 12: sp_virus:*
- 13: sp_vertebrate:*
- 14: sp_unclassified:*
- 15: sp_virus:*
- 16: sp_bacteriaph:*
- 17: sp_archaeap:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	154	77.8	138	11 P97567	P97567 rattus norv
2	120	60.6	59	6 Q866F9	Q866F9 bos mutus g
3	113	57.1	28	6 Q9XS89	Q9XS89 ermus cabal
4	92	46.5	26	6 P79406	P79406 sus scrofa
5	84	42.4	41	6 Q9TU30	Q9TU30 bos taurus
6	81	40.9	172	13 Q9DE29	Q9DE29 brachydanio
7	80.5	40.7	170	6 Q8M177	Q8M177 bos taurus
8	80	40.4	202	13 Q7ZYG8	Q7ZYG8 xenopus lae
9	78	39.4	170	11 Q8BJT8	Q8BJT8 mus musculus
10	78	39.4	173	13 Q98SP5	Q98SP5 oncorhynch
11	76.5	38.6	153	11 Q7TSR4	Q7TSR4 arvicanthi
12	76.5	38.6	171	11 Q9D2Z7	Q9D2Z7 mus musculus
13	75	37.9	89	13 Q98SP6	Q98SP6 anas platyr
14	73	36.9	175	13 Q90XZ4	Q90XZ4 ictalurus p
15	71	35.9	138	13 Q98SP4	Q98SP4 oncorhynch
16	70	35.4	171	13 Q9PUF8	Q9PUF8 xenopus lae

17	67	33.8	175	13 Q98TU3	Q98tu3 brachydanio
18	65	32.8	28	13 Q9PRN8	Q9prn8 carassius a
19	65	32.8	38	5 Q8IU39	Q8iu39 dugesia jap
20	65	32.8	38	5 Q8IU38	Q8iu38 hydra magni
21	65	32.8	38	5 Q8IU37	Q8iu37 sepioteuthi
22	65	32.8	38	5 Q8IU36	Q8iu36 periplaneta
23	65	32.8	38	13 Q8AYP5	Q8ayp5 trachurus j
24	65	32.8	38	13 Q8AYP4	Q8ayp4 acipenser s
25	64	32.3	427	10 Q94CE6	Q94ce6 arabidopsis
26	64	32.3	432	10 Q9C838	Q9c838 arabidopsis
27	64	32.3	758	10 Q9C838	Q9c838 arabidopsis
28	63.5	32.1	1217	4 Q9ULL5	Q9ull5 homo sapien
29	62.5	31.6	178	13 Q91971	Q91971 oncorhynch
30	62.5	31.6	178	13 Q91189	Q91189 oncorhynch
31	62.5	31.6	333	11 Q8R3A6	Q8r3a6 mus musculu
32	62	31.3	28	13 Q9PRI9	Q9pri9 amia calva
33	59.5	30.1	525	3 Q94142	Q94142 gibberella
34	59	29.8	620	5 Q9UIU0	Q9uiu0 caenorhabdi
35	58	29.3	412	16 Q31518	Q31518 bacillus su
36	58	29.3	509	4 Q8N995	Q8n995 homo sapien
37	57	28.8	81	15 Q908H8	Q908h8 human immun
38	57	28.8	81	15 Q908M3	Q908m3 human immun
39	57	28.8	82	15 Q90MJ1	Q90mj1 human immun
40	57	28.8	300	10 Q9SKT0	Q9skt0 arabidopsis
41	56.5	28.5	1016	17 Q9ZXG0	Q9zxg0 pyrobaculum
42	56	28.3	81	15 Q98ZY3	Q98zy3 human immun
43	56	28.3	81	15 Q98ZY8	Q98zy8 human immun
44	56	28.3	81	15 Q98ZY2	Q98zy2 human immun
45	56	28.3	81	15 Q98ZY4	Q98zy4 human immun

ALIGNMENTS

RESULT 1

P97567
ID P97567 PRELIMINARY; PRT; 138 AA.
AC P97567;
DT 01-MAY-1997 (TREMREL. 03, Created)
DT 01-MAY-1997 (TREMREL. 03, Last sequence update)
DT 01-JUN-2003 (TREMREL. 24, Last annotation update)
DE Pre-growth hormone releasing factor.
GN GHRH.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX NCBI_TaxID=10116;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=Sprague-Dawley; TISSUE=Placenta;
RX MEDLINE=9718624; PubMed=9037209;
RA Perez-Riba M, Gonzalez-Crespo S., Boronat A.;
RT "Differential splicing of the growth hormone-releasing hormone gene in
RT rat placenta generates a novel pre-proGHRH mRNA that encodes a
RT different C-terminal flanking peptide."
RL FEBS Lett. 402:273-276(1997).
DR EMBL; U41183; AAC53041.1; .
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR00532; Glucagon.
DR Pfam; PF00123; hormone2; 1.
DR SMART; SM00070; GLUCA; 1.
DR PROSITE; PS00260; GLUCAGON; 1.
SQ SEQUENCE 138 AA; 16226 MW; E9FD1336E48F4350 CRC64;

Query Match 77.8%; Score 154; DB 11; Length 138;
Best Local Similarity 76.3%; Pred. No. 11e-12;
Matches 29; Conservative 5; Mismatches 4; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQSLARKLLQDILNRQGGERNQEQ 38
Db 31 HADAIFTSSYRRLIGQLYARKLLHEIMNRQGGERNQEQ 68

```

QY 3 DAIFTNYSRKVLQAQLSARKLLQDILNR 29
    |||||:|||||:|||||:|||||:|||||:
Db 2 DAIFTNYSRKVLQAQLSARKLLQDILNR 28

RESULT 4
P79406 PRELIMINARY; PRT; 26 AA.
ID P79406;
AC P79406;
DT 01-MAY-1997 (TREMBlrel. 03, Created)
DT 01-DEC-2001 (TREMBlrel. 19, Last sequence update)
DT 01-JUN-2003 (TREMBlrel. 24, Last annotation update)
DE Growth hormone-releasing hormone (Fragment).
OS Sus scrofa [Pig].
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
NCBI_TaxID=9823;
[1]
SEQUENCE FROM N.A.
RP Baskin L.C., Pomp D.;
FA "Restriction fragment length polymorphism in amplification products of
RT the porcine growth hormone-releasing hormone gene.";
RL Submitted (FEB-1997) to the EMBL/GenBank/DBJ databases.
DR EMBL; U90275; AAB49991.1; -.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 1.
DR NON_TER 1
FT NON_TER 26
SQ SEQUENCE 26 AA; 3012 MW; 5C0827E466CA4FC6 CRC64;

Query Match 46.5%; Score 92; DB 6; Length 26;
Best Local Similarity 82.6%; Pred. No. 3.4e-05;
Matches 19; Conservative 2; Mismatches 2; Indels 0; Gaps 0.

QY 1 HVDAIFTNYSRKVLQAQLSARKLL 23
    :|||||:|||||:|||||:
Db 4 YANAIFTNYSRKVLQAQLSARKLL 26

RESULT 5
Q9TU30 PRELIMINARY; PRT; 41 AA.
ID Q9TU30;
AC Q9TU30;
DT 01-MAY-2000 (TREMBlrel. 13, Created)
DT 01-MAY-2000 (TREMBlrel. 13, Last sequence update)
DT 01-JUN-2003 (TREMBlrel. 24, Last annotation update)
DE Growth hormone releasing hormone (Fragment).
GN GHRH.
OS Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Bovinae; Bos.
NCBI_TaxID=9913;
[1]
SEQUENCE FROM N.A.
RP Lee S.H., Sang B.C., Kim H.B., Jin H.J., Kim S.K.;
RA "The characterization and polymorphism of growth hormone releasing
RT hormone (GHRH) gene by the direct sequencing methods in cattle.";
RL Submitted (JUL-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF168686; AAD55262.1; -.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 1.
DR NON_TER 1
FT NON_TER 41
SQ SEQUENCE 41 AA; 4473 MW; BD07604B7126D5A9 CRC64;

Query Match 42.4%; Score 84; DB 6; Length 41;
Best Local Similarity 85.0%; Pred. No. 0.00065;

```



```
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQAQLSAR 20
   : ||||| |||||
Db 21 YADAIFTNSYRKVLGQLSAR 40

RESULT 6
Q9DE29 PRELIMINARY; PRT; 172 AA.
AC Q9DE29;
AC Q9DE29;
DT 01-MAR-2001 (TrEMBLrel. 16, Created)
DT 01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DT 01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE Growth hormone-releasing hormone/pituitary adenylate cyclase-
DE activating polypeptide.
GN ADCYAP1.
OS Brachydanio rerio (Zebrafish) (Danio rerio).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
OC Cyprinidae; Danio.
OX NCBI_TaxID=7955;
RN [1]

RP SEQUENCE FROM N.A.
RA Fradinger E.A., Sherwood N.M.;
RT "Characterization of the gene encoding both growth hormone-releasing
RT hormone (GRF) and pituitary adenylate cyclase-activating polypeptide
RT (PACAP) in the zebrafish.";
RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.
RE EMBL; AF217251; AAG36782.1; -.
DR ZFIN; ZDB-GENE-020809-4; adcyap1.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 2.
DR PRINTS; PR00275; GLUCAGON.
DR SMART; SM00070; GLUCA; 2.
DR PROSITE; PS00260; GLUCAGON; 2.
FT CHAIN 81 125 GROWTH HORMONE-RELEASING HORMONE.
FT CHAIN 128 165 PITUITARY ADENYLATE CYCLASE-ACTIVATING
FT POLYPEPTIDE.
SQ SEQUENCE 172 AA; 19558 MW; 458117F0042E36DD CRC64;

Query Match 40.9%; Score 81; DB 13; Length 172;
Best Local Similarity 46.9%; Pred. No. 0.0079;
Matches 15; Conservative 6; Mismatches 11; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQAQLSAR 32
   : ||||| |||||
Db 81 HADGMFNKAYRKALGQLSARKYLHLMKRVG 112

RESULT 7
Q8MI77 PRELIMINARY; PRT; 170 AA.
AC Q8MI77;
DT 01-OCT-2002 (TrEMBLrel. 22, Created)
DT 01-OCT-2002 (TrEMBLrel. 22, Last sequence update)
DT 01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE Vasoactive intestinal polypeptide precursor.
OS Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Bovinae; Bos.
OX NCBI_TaxID=9913;
RN [1]

RP SEQUENCE FROM N.A.
RA Hamelink C., Lee H.-W., Chen Y., Grimaldi M., Eiden L.E.;
RT "Coincident elevation of cAMP and calcium influx by PACAP-27
RT synergistically regulates vasoactive intestinal polypeptide gene
RT transcription through a novel PKA-independent signaling pathway.";
RL J. Neurosci. 22:5310-5320(2002).
```

```
DR EMBL; AF503910; AAM28152.1; -.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 2.
DR PRINTS; PR00275; GLUCAGON.
DR SMART; SM00070; GLUCA; 2.
DR PROSITE; PS00260; GLUCAGON; 2.
KW Signal.
FT SIGNAL 1 22 POTENTIAL.
FT CHAIN 81 107 PHI.
FT CHAIN 125 152 VIP.
SQ SEQUENCE 170 AA; 19164 MW; 9C6A6049AF7BFF81 CRC64;

Query Match 40.7%; Score 80.5; DB 6; Length 170;
Best Local Similarity 37.5%; Pred. No. 0.0091;
Matches 15; Conservative 11; Mismatches 13; Indels 1; Gaps 1;

QY 1 HVDAIFTNSYRKVLQAQLSARKLLQDIL-NRQOGERNQEQ 39
   : ||||| |||||
Db 81 HADGVFTSDYSRLGQLSARKVLESIGKRVNSISEDQG 120

RESULT 8
Q7ZYG8 PRELIMINARY; PRT; 202 AA.
AC Q7ZYG8;
DT 01-JUN-2003 (TrEMBLrel. 24, Created)
DT 01-JUN-2003 (TrEMBLrel. 24, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE Hypothetical protein.
OS Xenopus laevis (African clawed frog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidae;
OC Xenopodinae; Xenopus.
OX NCBI_TaxID=8355;
RN [1]

RP SEQUENCE FROM N.A.
RC TISSUE=Embryo;
RA Klein S., Strausberg R.;
RL Submitted (JAN-2003) to the EMBL/GenBank/DBJ databases.
RE EMBL; BC043792; AAH43792.1; -.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 2.
DR PRINTS; PR00275; GLUCAGON.
DR SMART; SM00070; GLUCA; 2.
DR PROSITE; PS00260; GLUCAGON; 1.
KW Hypothetical protein.
SQ SEQUENCE 202 AA; 22956 MW; C3899324E96651EF CRC64;

Query Match 40.4%; Score 80; DB 13; Length 202;
Best Local Similarity 43.3%; Pred. No. 0.013;
Matches 13; Conservative 9; Mismatches 8; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQAQLSARKLLQDILNRQ 30
   : ||||| |||||
Db 87 HADGLFTSGYKLGQLSARKYLESIGKR 116

RESULT 9
Q8BJT8 PRELIMINARY; PRT; 170 AA.
AC Q8BJT8;
DT 01-MAR-2003 (TrEMBLrel. 23, Created)
DT 01-MAR-2003 (TrEMBLrel. 23, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE Pituitary adenylate cyclase activating polypeptide precursor.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Mus.
OX NCBI_TaxID=10090;
```

RN	[1]	SEQUENCE FROM N.A.	DE	Vasoactive intestinal polypeptide (Fragment).
RP	RC	STRAIN=C57BL/6J; TISSUE=Hypothalamus;	OS	Arvicanthus ansozei.
RX	RC	MEDLINE=22354683; PubMed=12466851;	OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
RA	RA	The FANTOM Consortium.	OC	Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
RA	RA	the RIKEN Genome Exploration Research Group Phase I & II Team;	OC	Arvicanthus.
RT	RA	"Analysis of the mouse transcriptome based on functional annotation of	OC	Arvicanthus.
RT	RT	60,770 full-length cDNAs."	RN	[1]
RL	RL	Nature 420:563-573 (2002).	RP	SEQUENCE FROM N.A.
DR	DR	EMBL; AK079530; BAC37673.1; --	RA	Dardente H., Menet J.S., Tournier B.B., Challet E., Pevet P.,
DR	GO	GO:0005576; C:extracellular; IEA.	RA	Mason-Pevet M.;
DR	GO	GO:0005179; F:hormone activity; IEA.	RT	"Neuropeptide expression in the suprachiasmatic nuclei of a diurnal
DR	InterPro	InterPro; IPR000532; Glucagon.	RT	rodent: Arvicanthus ansozei.;"
DR	Pfam	Pfam; PF00123; hormone2; 2.	RL	Submitted (JAN-2003) to the EMBL/GenBank/DBJ databases.
DR	PRINTS	PRINTS; PR00275; GLUCAGON.	DR	EMBL; AY225375; AAP15167.1; --
DR	SMART	SMART; SM00070; GLUCA; 2.	FT	NON_TER 1
DR	PROSITE	PROSITE; PS00260; GLUCAGON; 1.	SQ	SEQUENCE 153 AA; 17171 MW; 9C15095D6E147A15 CRC64;
SQ	SEQUENCE	170 AA; 18764 MW; C6E8C2C2C8860852 CRC64;		
	Query Match	39.4%; Score 78; DB 11; Length 170;		
	Best Local Similarity	58.6%; Pred. No. 0.02;		
	Matches	17; Conservative 3; Mismatches 9; Indels 0; Gaps 0;		
QY	5	IFTNSYRKVLQALSARKLLQDILNRQGE 33	QY	1 HYDAIFTNSYRKVLQALSARKLLQDILNRQGERNOE 37
DB	86	ILNEAYRKVLQALSARKLLQSVVARGAGE 114	DB	108 HSDAVFTDNYTRLRKQMAVKYLNLSILN---GARSSE 141
RESULT 10			RESULT 12	
Q98SP5			Q9D2Z7	
ID	Q98SP5	PRELIMINARY; PRT; 173 AA.	ID	Q9D2Z7 PRELIMINARY; PRT; 171 AA.
AC	Q98SP5		AC	Q9D2Z7
DT	01-JUN-2001 (TrEMBLrel. 17, Created)		DT	01-JUN-2001 (TrEMBLrel. 17, Created)
DT	01-JUN-2001 (TrEMBLrel. 17, Last sequence update)		DT	01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
DT	01-JUN-2003 (TrEMBLrel. 24, Last annotation update)		DT	01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE	Growth hormone-releasing hormone/pituitary adenylate cyclase-		DE	Vasoactive intestinal polypeptide.
DE	activating polypeptide.		GN	VIP.
OS	Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).		OS	Mus musculus (Mouse).
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;		OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC	Actinopterygii; Neopterygii; Teleostei; Euteleostei;		OC	Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OC	Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.		OC	NCBI_TaxID=10090;
OC	NCBI_TaxID=8022;		[1]	
RN	[1]		SEQUENCE FROM N.A.	
RP	SEQUENCE FROM N.A.		RC	STRAIN=C57BL/6J; TISSUE=Cecum;
RP	Kruecki S.L., Sherwood N.M.;		RX	MEDLINE=21085660; PubMed=11217851;
RT	"Temporal expression of grf/pacap during rainbow trout development."		RA	Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,
RT	Submitted (JAN-2001) to the EMBL/GenBank/DBJ databases.		RA	Atakawa T., Hata A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
DR	EMBL; AF343976; AAK28557.1; --		RA	Aizawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,
DR	GO	GO:0005576; C:extracellular; IEA.	RA	Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,
DR	GO	GO:0005179; F:hormone activity; IEA.	RA	Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
DR	InterPro	InterPro; IPR000532; Glucagon.	RA	Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,
DR	Pfam	Pfam; PF00123; hormone2; 2.	RA	Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
DR	PRINTS	PRINTS; PR00275; GLUCAGON.	RA	Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,
DR	SMART	SMART; SM00070; GLUCA; 2.	RA	Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
DR	PROSITE	PROSITE; PS00260; GLUCAGON; 2.	RA	Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F.,
SQ	SEQUENCE 173 AA; 19783 MW; 21D1A06A9C47F780 CRC64;		RA	Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,
	Query Match	39.4%; Score 78; DB 13; Length 173;	RA	Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
	Best Local Similarity	46.7%; Pred. No. 0.02;	RA	Lyons P., Marchionni L., Mashima J., Mazzarelli J., Momota N.,
	Matches	14; Conservative 6; Mismatches 10; Indels 0; Gaps 0;	RA	Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
			RA	Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
			RA	Suzuki H., Toyooka K., Wang K.H., Weitz C., Whittaker C., Wilming L.,
			RA	Wynshaw-Boris A., Yoshida K., Hasegawa Y., Kawai H., Kohtsuki S.,
			RA	Hayashizaki Y.;
			RT	"Functional annotation of a full-length mouse cDNA collection.;"
			RL	Nature 409:685-690(2001).
QY	1	HYDAIFTNSYRKVLQALSARKLLQDILNRQ 30	RL	EMBL; AK018599; BAB31301.1; --
DB	82	HADGFWKAYRKALQALSARKYLHSLMAKR 111	DR	EMBL; AK018599; BAB31301.1; --
			DR	MGD; MGI:98933; Vip.
			DR	GO; GO:0005576; C:extracellular; IEA.
			DR	GO; GO:0005179; F:hormone activity; IEA.
			DR	InterPro; IPR000532; Glucagon.
			DR	Pfam; PF00123; hormone2; 2.
			DR	PRINTS; PR00275; GLUCAGON.
			DR	SMART; SM00070; GLUCA; 2.
			DR	PROSITE; PS00260; GLUCAGON; 2.
			SQ	SEQUENCE 171 AA; 19135 MW; 134A434DB6DF1254 CRC64;
RESULT 11				
Q7TSR4				
ID	Q7TSR4	PRELIMINARY; PRT; 153 AA.		
AC	Q7TSR4			
DT	01-OCT-2003 (TrEMBLrel. 25, Created)			
DT	01-OCT-2003 (TrEMBLrel. 25, Last sequence update)			
DT	01-OCT-2003 (TrEMBLrel. 25, Last annotation update)			

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OM protein - protein search, using sw model

Run on: July 12, 2004, 20:41:06 ; Search time 50.5 Seconds
(without alignments)
223.800 Million cell updates/sec

Title: US-10-021-403A-1

Perfect score: 199

Sequence: 1 YANAIFTSYRKVLGQLSARKLLQDIMSQQGERNOENGA 40

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1586107 seqs, 282547505 residues

Total number of hits satisfying chosen parameters: 1586107

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A Geneseq 29Jan04: *
1: geneseqp1980s: *
2: geneseqp1990s: *
3: geneseqp2000s: *
4: geneseqp2001s: *
5: geneseqp2002s: *
6: geneseqp2003as: *
7: geneseqp2003bs: *
8: geneseqp2004s: *

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	188	94.5	40	2	AAR24169 Growth ho
2	188	94.5	40	4	AAB69172 Porcine G
3	188	94.5	40	5	ABB78057 Amino aci
4	188	94.5	40	6	AAB35251 Porcine g
5	188	94.5	40	6	AAB30856 Porcine g
6	188	94.5	40	6	AAB29866 Porcine g
7	188	94.5	40	7	ABR84643 Porcine g
8	188	94.5	44	1	AAP50141 Sequence
9	188	94.5	44	1	AAP71496 Growth ho
10	188	94.5	44	2	AAR24174 Human gro
11	188	94.5	44	2	AAB29416 Growth ho
12	188	94.5	44	4	AAB390939 Growth ho
13	188	94.5	75	4	AAB36979 Porcine g
14	188	94.5	75	5	AAB98073 Human/pig
15	188	94.5	76	2	AAR15447 Ser 9 for
16	188	94.5	106	2	AAR15449 Ser 9 pGR
17	185	93.0	44	1	AAP50142 Sequence
18	185	93.0	44	1	AAP71497 Growth ho
19	185	93.0	44	2	AAR24177 Caprine g
20	185	93.0	44	2	AAR27773 Mature BG
21	185	93.0	44	2	AAR24361 Sequence
22	185	93.0	44	2	AAB29417 Growth ho
23	185	93.0	44	2	AAB16378 Synthetic
24	185	93.0	44	4	AAB90938 Growth ho
25	185	93.0	76	2	AAR15446 Asn 9 for

26	185	93.0	106	2	AAR15448	Aar15448 Asn 9 pGR
27	185	93.0	106	2	AAR27774	Aar27774 Precursor
28	184	92.5	44	1	AAP50143	Aap50143 Sequence
29	184	92.5	44	1	AAP71498	Aap71498 Growth ho
30	184	92.5	44	2	AAR24178	Aar24178 Ovine gro
31	184	92.5	44	2	AAB29418	Aab29418 Growth ho
32	184	92.5	44	4	AAB90951	Aab90951 Growth ho
33	182	91.5	40	1	AAP50394	Aap50394 Growth ho
34	182	91.5	40	2	AAR31431	Aar31431 Growth ho
35	182	91.5	40	2	AAB44705	Aab44705 Human GRF
36	182	91.5	40	4	AAB90947	Aab90947 Growth ho
37	182	91.5	40	4	AAB90948	Aab90948 Growth ho
38	182	91.5	40	6	AAB35250	Aab35250 Human mat
39	182	91.5	41	1	AAP50182	Aap50182 Growth ho
40	182	91.5	41	2	AAR69069	Aar69069 Growth Ho
41	182	91.5	41	2	AAR98952	Aar98952 Target pe
42	182	91.5	41	2	AAB44710	Aab44710 Human GRF
43	182	91.5	42	2	AAR69081	Aar69081 Growth ho
44	182	91.5	42	2	AAB44711	Aab44711 Human GRF
45	182	91.5	44	1	AAP40357	Aap40357 Sequence

ALIGNMENTS

RESULT 1
AAR24169
ID AAR24169 standard; peptide; 40 AA.
XX
AC AAR24169;
XX
DT 25-MAR-2003 (revised)
DT 17-NOV-1992 (first entry)
XX
DE Growth hormone releasing peptide.
XX
KW Growth; meat production; wool; carcass; feed; efficiency; milk.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Modified-site 1 /note= "N-isopropyl-Tyr"
FT Modified-site 12 /note= "N-isopropyl-Lys"
FT Modified-site 21 /note= "N-isopropyl-Lys"
FT Modified-site 21 /note= "N-isopropyl-Lys"
XX
PN US5112808-A.
XX
PD 12-MAY-1992.
XX
PF 10-MAY-1988; 88US-00187402.
XX
PR 11-MAY-1987; 87US-00048203.
XX
(AMCY) AMERICAN CYANAMID CO.
XX
Coy DH, Murphy WA;
XX
WPI; 1992-183024/22.
XX
PT New alkylated hormone-releasing peptide(s) - increasing growth rate of meat prodn. animals and treating growth hormone deficiencies.
XX
PS Disclosure; Page 4; 13pp; English.
XX
CC The peptide may be prepd. by standard solid phase synthesis.
CC Administration of the peptide increases the release of growth hormone in mammals, including humans. It may be used to treat symptoms related to growth hormone deficiencies and may also be used to increase wool growth and the rate of growth; to improve carcass quality (i.e. more protein and less fat); and to improve feed efficiency in meat producing animals and

CC to improve milk prodn. in dairy herds. See also AAR24155-83. (Updated on
 CC 25-MAR-2003 to correct PF field.)

XX Sequence 40 AA;
 SQ Query Match 94.5%; Score 188; DB 2; Length 40;
 Best Local Similarity 95.0%; Pred. No. 6.7e-17;
 Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 YANAIFTSYRKVLGQLSARKLLQDIMSROGGERNQENGA 40
 ||:|||||
 Db 1 YADAIFTSYRKVLGQLSARKLLQDIMSROGGERNQENGA 40
 ||:|||||

RESULT 2
 AAB69172
 ID AAB69172 standard; peptide; 40 AA.

XX AC AAB69172;

XX DT 26-APR-2001 (first entry)

XX DE Porcine GHRH wild type 1-40 amino acid sequence.

XX KW Human; porcine; growth hormone releasing hormone; GHRH; mutagenesis;
 KW vulnary; anti-HIV; growth performance; wasting; burn; trauma; AIDS;
 KW acquired immunodeficiency syndrome; consumption disease; growth hormone;
 KW enhancing growth.

XX OS Sus scrofa.

XX PN WO200106988-A2.

XX PD 01-FEB-2001.

XX PF 24-JUL-2000; 2000WO-US020127.

XX PR 26-JUL-1999; 39US-0145624P.

XX PA (BAYU) BAYLOR COLLEGE MEDICINE.

XX PI Schwartz RJ, Draghia-Akli R;

XX DR WPI; 2001-168489/17.

XX PT New growth hormone release hormone analog for treating growth hormone-
 PT related deficiencies, improving growth performance and stimulating the
 PT production of growth hormone in an animal.

XX PS Example 1; Fig 1A; 56pp; English.

XX CC The present invention describes a growth hormone-releasing hormone (GHRH)
 CC analogue (I). Also described are: (1) a pharmaceutical composition (PC)
 CC for stimulating the release of growth hormone (GH) in animals, comprising
 CC (I); (2) a nucleotide sequence (II) encoding (I) as a composition of
 CC matter; (3) a vector (III) comprising a promoter (II) and a 3'
 CC untranslated region operatively linked for functional expression; (4)
 CC increasing GH, treating a GH-related deficiency disease associated with
 CC the GH pathway, improving growth performance, treating wasting symptoms,
 CC and enhancing growth, in an animal comprising introducing (III) into the
 CC animal; (5) increasing the efficiency in an animal comprising introducing
 CC (III) into the animal; and (6) stimulating production of GH in an animal
 CC at a level greater than that associated with normal growth comprising
 CC introducing (III) into the animal. (I) has vulnary and anti-HIV
 CC activity, and can be used in gene therapy. The vector (III) comprising
 CC (I) is useful for increasing growth hormone (GH), treating GH-related
 CC deficiency disease associated with a GH pathway as a result of change in
 CC genetic material, for improving growth performance, increasing the
 CC efficiency of an animal, treating wasting symptoms associated with burns,
 CC trauma, acquired immunodeficiency syndrome (AIDS) or other consumption
 CC diseases, stimulating growth hormone in an animal at a level greater than
 CC that associated with normal growth, and for enhancing growth, in an
 CC animal e.g. human, pet animals, food animals and work animals. The

CC present sequence represents the wild type porcine GHRH amino acid
 CC sequence of residues 1 to 40, which is used in an example from the
 CC present invention

XX SQ Sequence 40 AA;

Query Match 94.5%; Score 188; DB 4; Length 40;
 Best Local Similarity 95.0%; Pred. No. 6.7e-17;
 Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 YANAIFTSYRKVLGQLSARKLLQDIMSROGGERNQENGA 40
 ||:|||||
 Db 1 YADAIFTSYRKVLGQLSARKLLQDIMSROGGERNQENGA 40
 ||:|||||

RESULT 3
 ABB78057
 ID ABB78057 standard; protein; 40 AA.

XX AC ABB78057;

XX DT 05-NOV-2002 (first entry)

XX DE Amino acid sequence of pig growth hormone releasing hormone.

XX KW Pig; growth hormone releasing hormone; GHRH; growth rate; lean body mass;
 KW Insulin-like Growth Factor-I; IGF-I; milk production; feed efficiency;
 KW somatotroph; growth-related disorder; hypopituitary dwarfism; hormone;
 KW meat production; egg production.

XX OS Sus sp.

XX PN WO200261037-A2.

XX PD 08-AUG-2002.

XX PF 12-DEC-2001; 2001WO-US048726.

XX PR 12-DEC-2000; 2000US-0255021P.

XX PA (BAYU) BAYLOR COLLEGE MEDICINE.

XX PI (ADVI-) ADVISYS.

XX PT Schwartz RJ, Carpenter RH, Draghia-Akli R, Kern DR, Smith RG;

XX DR WPI; 2002-619237/66.

XX PT Improving or enhancing growth, lean body mass, milk production, feed
 PT efficiency or Insulin-like Growth Factor-I levels, comprises introducing
 PT a vector encoding a growth hormone releasing hormone into an animal
 PT before or during gestation.

XX PS Claim 5; Page 62; 113pp; English.

XX CC The present sequence represents a pig growth hormone releasing hormone
 CC (GHRH). Nucleic acids encoding GHRH are used in the method of the
 CC invention. The specification describes a method for improving or
 CC enhancing characteristics e.g. growth, lean body mass, insulin-like
 CC Growth Factor (IGF)-I levels, growth rate and milk production in an
 CC offspring, and for delaying birth of an offspring. The method comprises
 CC introducing a vector, encoding GHRH, into cells of the female animal
 CC prior to or during gestation of the offspring under conditions where the
 CC nucleotide sequence is expressed. The method is useful of improving or
 CC enhancing animal growth, for increasing growth hormone, lean body mass,
 CC IGF-I levels, feed efficiency, growth rate, ratio of somatotrophs to
 CC other hormone-producing cells in a pituitary gland, and milk production
 CC in an offspring, and for delaying birth of an offspring. GHRH nucleic
 CC acids and vectors are used for diagnostic purposes in clinical medicine,
 CC both human and veterinary, e.g. in treating growth-related disorders such
 CC as hypopituitary dwarfism resulting from abnormalities in growth hormone
 CC production, and in stimulating the growth and enhancing feed conversion
 CC efficiency of animals raised for meat, milk and egg production

XX

```

SQ Sequence 40 AA;
Query Match          94.5%; Score 188; DB 5; Length 40;
Best Local Similarity 95.0%; Pred. No. 6.7e-17;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGERNQEGA 40
    ||:|||||
Db 1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGERNQEGA 40
    ||:|||||

RESULT 4
AAE35251
ID AAE35251 standard; protein; 40 AA.
XX
AC AAE35251;
XX
DT 28-MAY-2003 (first entry)
XX
DE Porcine growth hormone releasing hormone (GHRH) protein.
XX
KW Growth hormone releasing hormone; GHRH; insulin-like froth factor-I;
KW IGF-I; osteopathic; acquired immune deficiency syndrome; AIDS; cancer;
KW post-surgery; growth hormone-related deficiency; transgene; bone loss;
KW burn; post-fracture; genetic disease; gene therapy; porcine.
XX
OS Sus scrofa.
XX
FN WO200297099-A1.
XX
PD 05-DEC-2002.
XX
PF 30-MAY-2001; 2001WO-US017573.
XX
PR 29-MAY-2001; 2001US-0294316P.
XX
PA (VALE-) VALENTIS INC.
PA (BAYU) BAYLOR COLLEGE MEDICINE.
XX
PI Nordstrom JL, Draghia-Akli R;
XX
DR WPI; 2003-140478/13.
XX
PT Novel inducible growth hormone releasing hormone expression system in
PT which expression of gene encoding GHRH that induces production of insulin
PT -like froth factor-I in vivo, is not observed in absence of ligand.
XX
PS Disclosure; Fig 20; 45pp; English.
XX
CC The invention relates to an inducible growth hormone releasing hormone
CC (GHRH) expression system in which expression of gene encoding GHRH that
CC induces production of insulin-like froth factor-I (IGF-1) in vivo, is not
CC observed in absence of ligand. The invention is useful for preparing a
CC pharmaceutical composition for indications such as increasing weight,
CC increasing lean body mass, decreasing fat mass, conversion to anabolism
CC for a catabolic state associated with wasting, and increasing bone area,
CC content and density. It is useful for regulated GHRH expression in vivo,
CC for use in the indications, where the wasting is associated with cancer,
CC acquired immune deficiency syndrome (AIDS), burns, or post-surgery. It is
CC also useful for treating the growth hormone-related deficiencies
CC associated with the growth hormone pathway, treating growth hormone-
CC related deficiencies associated with genetic disease, and to prevent or
CC treat bone loss, as in elderly, or post-fracture. It is also applied in
CC vivo to effect expression of a transgene for gene therapy purposes. The
CC present sequence is porcine GHRH protein used in the invention
XX
SQ Sequence 40 AA;
Query Match          94.5%; Score 188; DB 6; Length 40;
Best Local Similarity 95.0%; Pred. No. 6.7e-17;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGERNQEGA 40
    ||:|||||
Db 1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGERNQEGA 40
    ||:|||||

RESULT 5
AAO30856
ID AAO30856 standard; protein; 40 AA.
XX
AC AAO30856;
XX
DT 22-SEP-2003 (first entry)
XX
DE Porcine growth hormone releasing hormone (GHRH).
XX
KW Plasmid-mediated supplementation; anaemia; tumour; adenoma; melanoma;
KW sarcoma; immune dysfunction; carcinoma; leukaemia; kidney failure;
KW lymphoma; weight loss; lymphopoeisis; appetite stimulant; anorectic;
KW growth hormone releasing hormone; GHRH; porcine.
XX
OS Sus scrofa.
XX
PN WO2003049700-A2.
XX
PD 19-JUN-2003.
XX
PF 10-DEC-2002; 2002WO-US039509.
XX
PR 11-DEC-2001; 2001US-0339610P.
XX
PA (ADVI-) ADVISYS INC.
PA (BAYU) BAYLOR COLLEGE MEDICINE.
XX
PI Draghia-Akli R, Carpenter RH, Kern DR, Schwartz RJ, King G;
PI Hahn K, Brenner MK;
XX
DR WPI; 2003-558968/52.
XX
PT Treating anemia, immune dysfunction, tumor, increasing total red blood
PT cell mass, reversing wasting or abnormal weight loss in subject, by
PT administering nucleic acid construct encoding growth-hormone-releasing-
PT hormone.
XX
PS Claim 258; Fig 1; 212pp; English.
XX
CC The invention relates to compositions and methods for plasmid-mediated
CC supplementation. The method is useful for treating anaemia, tumour (such
CC as adenoma, mast cell tumour, melanoma, sarcoma or solid tumour), immune
CC dysfunction, carcinoma (benign or malignant), leukaemia, lymphoma or
CC kidney failure, for preventing the development of metastatic tumour, for
CC increasing total red blood cell mass, for reversing wasting, abnormal
CC weight loss or suppression of lymphopoeisis, in a subject, or for
CC increasing weight gain in a chronically ill subject or, or for extending
CC life expectancy for a chronically ill subject. The present sequence is
CC porcine growth hormone releasing hormone (GHRH). This sequence is used to
CC illustrate the method of the invention
XX
SQ Sequence 40 AA;
Query Match          94.5%; Score 188; DB 6; Length 40;
Best Local Similarity 95.0%; Pred. No. 6.7e-17;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGERNQEGA 40
    ||:|||||
Db 1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGERNQEGA 40
    ||:|||||

RESULT 6
AAO29866
ID AAO29866 standard; protein; 40 AA.
XX
AC AAO29866;
XX

```

DT 27-AUG-2003 (first entry)
XX Porcine growth hormone releasing hormone (GHRH) protein.
DE
XX Growth hormone releasing hormone; GHRH; lean body mass; bone density;
KW bone healing; gene therapy; anorectic; osteopathic; porcine.
KW
XX Sus scrofa.
OS
XX WO2003038112-A2.
XX
XX 08-MAY-2003.
PD
XX
XX 25-OCT-2002; 2002WO-US034275.
PF
XX 26-OCT-2001; 2001US-0357808P.
XX
XX (BAYU) BAYLOR COLLEGE MEDICINE.
PA
XX Draghia-Akli R, Schwartz RJ;
PI WPI; 2003-493212/46.
XX
XX Decreasing body fat proportion, increasing lean body mass, bone density
XX or bone healing rate by delivering into cells of the subject a nucleic
XX acid expression construct that encodes a growth-hormone-releasing-hormone
XX (GHRH).
XX
XX Example 1; Fig 1; 165pp; English.
XX
XX The invention relates to a method for decreasing body fat proportion,
XX increasing lean body mass, bone density or bone healing rate in a subject
XX which involves delivering a nucleic acid expression construct that
XX encodes a growth hormone releasing hormone (GHRH) or its functional
XX biological equivalent into cells of the subject. The method is useful for
XX decreasing body fat proportion, for increasing lean body mass, bone
XX density or bone healing rate, or for altering lean body mass in a
XX subject. It is used in gene therapy. The present sequence is porcine GHRH
XX protein. This sequence is used to illustrate the method of the invention
XX
XX Sequence 40 AA;
XX
XX Query Match 94.5%; Score 188; DB 6; Length 40;
XX Best Local Similarity 95.0%; Pred. No. 6.7e-17;
XX Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
Qy 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40
Db 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40
RESULT 7
ABR84643
ID ABR84643 standard; protein; 40 AA.
XX
XX ABR84643;
AC
XX 18-DEC-2003 (first entry)
DT
XX Porcine growth hormone releasing hormone.
DE
XX Human; growth hormone releasing hormone; GHRH; pig; gene therapy;
XX intergenerational growth promotion; pituitary gland; mutant;
KW hypopituitary dwarfism.
KW
XX Sus scrofa.
OS
XX WO2003066825-A2.
XX
XX 14-AUG-2003.
PD
XX 06-FEB-2003; 2003WO-US003640.
PF
XX

PR 07-FEB-2002; 2002US-0355566P.
XX
PA (BAYU) BAYLOR COLLEGE MEDICINE.
XX
PI Draghia-Akli R, Khan A;
XX WPI; 2003-731498/69.
XX
XX Changing the pituitary lineage in an offspring from a female subject
XX given a nucleic acid expression construct that encodes GHRH, useful in
XX treating growth deficiency disorders such as hypopituitary dwarfism.
XX
XX Example 1; Page 74; Opp; English.
XX
XX The present invention relates to a method of changing the pituitary
XX lineage in an offspring from a female subject. This comprises delivering
XX a nucleic acid expression construct into cells of the female subject, of
XX where the delivery is completed prior to or during a gestation period, of
XX the offspring and the nucleic acid expression construct comprises a
XX promoter, a nucleotide sequence and a 3' untranslated region, and
XX delivery is completed under conditions where expression of the nucleotide
XX sequence results in the changing of the pituitary lineage in the
XX offspring. The promoter in the method cited comprises a myogenic promoter
XX and the nucleic acid expression construct encodes a growth-hormone-
XX releasing-hormone (GHRH) or its functional biological equivalent. The
XX methods and compositions of the present invention are useful for altering
XX pituitary development and hormone secretion (prolactin) in the offspring
XX of a female subject given a nucleic acid expression construct that
XX encodes GHRH. They can specifically be useful in growth deficiency
XX disorders such as hypopituitary dwarfism, and where milk production and
XX egg production stimulation is needed particularly in animal breeding
XX purposes. The present sequence is porcine GHRH
XX
XX Sequence 40 AA;
XX
XX Query Match 94.5%; Score 188; DB 7; Length 40;
XX Best Local Similarity 95.0%; Pred. No. 6.7e-17;
XX Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
Qy 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40
Db 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40
RESULT 8
AAP50141
ID AAP50141 standard; peptide; 44 AA.
XX
XX AAP50141;
AC
XX 25-MAR-2003 (revised)
DT 10-MAR-2003 (revised)
DT 30-NOV-1991 (first entry)
XX
XX Sequence of synthetic growth hormone release factor analogue.
XX
XX Growth promoter; milk production; lactation.
XX
XX Synthetic.
XX
XX Key Location/Qualifiers
XX Modified-site 1
FT /label= H-Tyr
FT Modified-site 44
FT /label= Leu-NH2
XX
XX EPI37689-A.
PN
XX 17-APR-1985.
PD
XX 28-AUG-1984; 84EP-00305845.
PF
XX 29-AUG-1983; 83US-00527292.
PR

PR 12-OCT-1983; 83US-00541167.
 PR 02-MAR-1984; 84US-00585814.
 PR 29-AUG-1985; 85US-00527292.
 XX
 PA (SALK) SALK INST BIOLOGICAL STUDIES.
 XX
 PI Bohlen P, Brazeau PE, Esch FS, Ling NCK, Wehrenberg WB;
 PI Guillemin RCL;
 XX
 XX WPI; 1985-094590/16.
 DR
 XX
 PT New synthetic, growth hormone release factor analogue peptide(s) - useful
 PT for increasing growth and/or milk prodn. in domestic animals.
 XX
 PS Claim 7; Page 20; 25pp; English.
 XX
 CC The peptides of the invention stimulate growth hormone release and are
 CC useful for accelerating the growth of cold-blooded aquatic animals and
 CC for accelerating the growth and/or milk prodn. of warm-blooded, non-
 CC human animals, e.g. cattle, sheep, goats and pigs. They may also be used
 CC for diagnostic purposes. Doses are e.g. 20-2000 ng/kg. (Updated on 10-MAR
 CC -2003 to add missing OS field.) (Updated on 25-MAR-2003 to correct PA
 CC field.)
 CC
 XX
 XX Sequence 44 AA;
 Query Match 94.5%; Score 188; DB 1; Length 44;
 Best Local Similarity 95.0%; Pred. No. 7.3e-17;
 Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
 QY 1 YANAFTSYRKVLGQLSARKLLQDIMSROQGERNQEGA 40
 DB 1 YADAFTSYRKVLGQLSARKLLQDIMSROQGERNQEGA 40
 ||:|||||
 ||:|||||
 RESULT 9
 AARP71496
 ID AARP71496 standard; protein; 44 AA.
 AC AARP71496;
 XX
 DT 01-MAY-1991 (first entry)
 XX
 DE Growth hormone releasing cpd. group 1 polypeptide (#145).
 XX
 XX Growth hormone; releasing peptide; synergistic; milk prodn; body growth.
 XX
 OS Synthetic.
 XX
 FN W08706635-A.
 XX
 PD 19-NOV-1987.
 XX
 XX 12-MAY-1986; 86US-00861968.
 PF
 XX 12-MAY-1986; 86US-00861968.
 PR
 PR 10-APR-1987; 87US-00037275.
 XX
 XX (EAST) EASTMAN KODAK CO.
 PA
 XX
 XX Bowers CY, Momany FA, Chang CH, Cody WL, Hubbs JC, Foster CH;
 PI WPI; 1987-334878/47.
 DR
 XX
 XX Combinations of polypeptide(s) - which act in a synergistic manner to
 PT promote release and elevation of growth hormone levels in animals.
 PT
 XX Claim 3 (a); Page 80; 109pp; English.
 PS
 XX A combination effective to cause the release and elevation of the level
 CC of growth hormone in the blood of an animal comprises polypeptides
 CC selected from at least 2 different groups of group 1 (AAP71495-99), group
 CC 2 (AAP71500-13) or group 3 (AAP71579-94). Group 1 polypeptides are

CC selected from any of the naturally occurring growth hormone releasing
 CC hormones (GHRHs) and functional equivalents where the polypeptides act at
 CC the GHRH receptor of mammals and other vertebrates and crustaceans. This
 CC polypeptide is derived from porcine GHRH. The combinations have enhanced
 CC stabilities, solubilities, physicochemical properties and biological
 CC activities relative to known growth hormone releasing cpds. They may be
 CC used to enhance GH levels in animals, to enhance milk prodn. in cows,
 CC enhance body growth in animals such as mammals, fish, fowl and
 CC crustaceans and increase wool and/or fur prodn. in mammals
 XX
 XX Sequence 44 AA;
 Query Match 94.5%; Score 188; DB 1; Length 44;
 Best Local Similarity 95.0%; Pred. No. 7.3e-17;
 Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
 QY 1 YANAFTSYRKVLGQLSARKLLQDIMSROQGERNQEGA 40
 DB 1 YADAFTSYRKVLGQLSARKLLQDIMSROQGERNQEGA 40
 ||:|||||
 ||:|||||
 RESULT 10
 AAR24174
 ID AAR24174 standard; peptide; 44 AA.
 XX
 AC AAR24174;
 XX
 DT 25-MAR-2003 (revised)
 DT 17-NOV-1992 (first entry)
 XX
 DE Human growth hormone releasing peptide.
 XX
 XX Growth; meat production; wool; carcass; feed; efficiency; milk.
 XX
 OS Synthetic.
 XX
 FH Key Location/Qualifiers
 FT Modified-site 1 /note= "N-isopropyl-Tyr"
 FT Modified-site 12 /note= "N-isopropyl-Lys"
 FT Modified-site 21 /note= "N-isopropyl-Lys"
 FT Modified-site 44 /note= "amidated"
 FT
 XX
 PN US5112808-A.
 XX
 XX 12-MAY-1992.
 PD
 XX 10-MAY-1988; 88US-00187402.
 PF
 XX 11-MAY-1987; 87US-00048203.
 PR
 XX (AMCY) AMERICAN CYANAMID CO.
 PA
 XX Coy DH, Murphy WA;
 PI
 XX WPI; 1992-183024/22.
 DR
 XX New alkylated hormone-releasing peptide(s) - increasing growth rate of
 PT meat prodn. animals and treating growth hormone deficiencies.
 PT
 XX Disclosure; Page 5; 13pp; English.
 PS
 XX The peptide may be prepd. by standard solid phase synthesis.
 CC Administration of the peptide increases the release of growth hormone in
 CC mammals, including humans. It may be used to treat symptoms related to
 CC growth hormone deficiencies and may also be used to increase wool growth
 CC and the rate of growth; to improve carcass quality (i.e. more protein and
 CC less fat); and to improve feed efficiency in meat producing animals and
 CC to improve milk prodn. in dairy herds. See also AAR24155-83. (Updated on
 CC 25-MAR-2003 to correct PF field.)

XX SQ Sequence 44 AA;
Query Match 94.5%; Score 188; DB 2; Length 44;
Best Local Similarity 95.0%; Pred. No. 7.3e-17;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGERNOENGA 40
DB 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGERNOENGA 40
||:|||||||||||||||||||||||||||||||||||

RESULT 11
AAW29416
ID AAW29416 standard; peptide; 44 AA.
XX AC AAW29416;
XX DT 27-AUG-2003 (revised)
XX DT 24-FEB-1998 (first entry)
XX DE Growth hormone releasing factor peptide segment 1-44.
XX KW Human growth hormone releasing factor; GRF; peptide synthesis;
XX KW pituitary dwarfism; renal insufficiency; Turner's syndrome;
XX KW short stature; milk production; animal growth.
XX OS Synthetic.
XX OS Mammalia.
XX PH Key Location/Qualifiers
XX FT Modified-site 44 /note= "C-terminal amide"
XX FT FT
XX PN WO9717367-A1.
XX PD 15-MAY-1997.
XX XX
XX XX 28-OCT-1996; 96WO-CA000712.
XX PF 03-NOV-1995; 95US-00552596.
XX PR (THER-) THERATECHNOLOGIES INC.
XX PA Ibea M, Brazeau P;
XX PI WPI; 1997-280981/25.
XX DR Production of growth hormone releasing factor peptide(s) - by coupling of
XX PT GRF peptide segments on a solid phase to produce high yields of the GRF
XX PT peptides.
XX PS Disclosure; Page 22; 32pp; English.

XX CC This sequence represents growth hormone releasing factor (GRF) peptide
XX CC segment 1-44-NH2. This peptide is synthesised in a new high yield process
XX CC for manufacturing (Gly or Ala)15 or 32GRF containing peptide. The method
XX CC comprises the steps of (a) synthesis of 14 to 15 residues of fully
XX CC protected GRF peptide acidic segments (S1)-OH and (S2)-OH from sarsin
XX CC resin, using sequential Fmoc chemistry; (b) synthesis of 12 to 15
XX CC residues of side chain protected GRF peptide amide segments (S3)-NH-,
XX CC (S4)-NH- and/or (S5)-NH- on solid phase using a trifluoroacetic acid
XX CC sensitive resin; and (c) one or two coupling steps of the synthesised GRF
XX CC peptide segments of steps (a) and (b) on a solid phase. The GRF peptides
XX CC can be used for stimulating growth hormone release e.g. for stimulating
XX CC growth in children with pituitary dwarfism, renal insufficiencies,
XX CC Turner's syndrome or short stature, and for stimulating growth of animals
XX CC and increasing milk production in cows. This segment coupling method can
XX CC provide the GRF peptides in high yields compared with step by step
XX CC coupling. (Updated on 27-AUG-2003 to correct OS field.)
XX SQ Sequence 44 AA;

Query Match 94.5%; Score 188; DB 2; Length 44;
Best Local Similarity 95.0%; Pred. No. 7.3e-17;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGERNOENGA 40
DB 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGERNOENGA 40
||:|||||||||||||||||||||||||||||||||||

RESULT 12
AAB90939
ID AAB90939 standard; peptide; 44 AA.
XX AC AAB90939;
XX DT 22-JUN-2001 (first entry)
XX DE Growth hormone releasing factor (GRF) related peptide SEQ ID NO:113.
XX KW Protection; endogenous therapeutic peptide; peptidase; conjugation;
XX KW blood component; modification; succinimidy; maleimido group; amino;
XX KW hydroxyl; thiol; hormone; growth factor; neurotransmitter.
XX OS Homo sapiens.
XX OS Synthetic.
XX PN WO200069900-A2.
XX PD 23-NOV-2000.
XX XX
XX PF 17-MAY-2000; 2000WO-US013576.
XX PR 17-MAY-1999; 99US-01344406P.
XX PR 10-SEP-1999; 99US-0153406P.
XX PR 15-OCT-1999; 99US-0159783P.
XX XX
XX PA (CONJ-) CONJUCHEM INC.
XX PI Bridon DP, Ezrin AM, Milner PG, Holmes DL, Thibaudeau K;
XX XX WPI; 2001-112059/12.
XX DR Modifying and attaching therapeutic peptides to albumin prevents
XX PT peptidase degradation, useful for increasing length of in vivo activity.
XX PS Disclosure; Page 227; 733pp; English.

XX CC The present invention describes a modified therapeutic peptide (I)
XX CC comprising a therapeutically active amino acid region (III) and a
XX CC reactive group (II) (e.g. succinimidy and maleimido groups) attached to
XX CC a less therapeutically active amino acid region (IV), which covalently
XX CC bonds with amino/hydroxyl/thiol groups on blood components to form a
XX CC peptidase stabilised therapeutic peptide composed of 3-50 amino acids.
XX CC (I) are useful for modifying therapeutic peptides e.g. hormones, growth
XX CC factors and neurotransmitters, to protect them from peptidase activity in
XX CC vivo for the treatment of various disorders. Endogenous therapeutic
XX CC peptides are not suitable as drug candidates as they require frequent
XX CC administration due to rapid degradation by peptidases in the body.
XX CC Modifying and attaching therapeutic peptides to albumin prevents or
XX CC reduces the action of peptidases to increase length of activity (half
XX CC life) and specificity as bonding to large molecules decreases
XX CC intracellular uptake and interference with physiological processes.
XX CC AAB90829 to AAB92441 represent peptides which can be used in the
XX CC exemplification of the present invention
XX SQ Sequence 44 AA;

Query Match 94.5%; Score 188; DB 4; Length 44;
Best Local Similarity 95.0%; Pred. No. 7.3e-17;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGERNOENGA 40
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1	188	94.5	40	4	US-09-624-268B-14	Sequence 14, Appl
2	188	94.5	44	1	US-08-063-472B-31	Sequence 31, Appl
3	188	94.5	44	4	US-09-123-171D-6	Sequence 6, Appl
4	185	93.0	44	1	US-08-218-608-12	Sequence 12, Appl
5	185	93.0	44	1	US-08-062-472B-29	Sequence 29, Appl
6	185	93.0	44	1	US-08-062-472B-30	Sequence 30, Appl
7	185	93.0	44	4	US-09-123-171D-5	Sequence 5, Appl
8	185	93.0	44	4	US-09-123-171D-9	Sequence 9, Appl
9	184	92.5	44	1	US-08-062-472B-28	Sequence 8, Appl
10	184	92.5	44	4	US-09-122-171D-7	Sequence 7, Appl
11	182	91.5	40	1	US-08-410-353-2	Sequence 2, Appl
12	182	91.5	40	2	US-08-493-534-2	Sequence 2, Appl
13	182	91.5	40	4	US-09-123-171D-10	Sequence 10, Appl
14	182	91.5	41	1	US-08-095-162-7	Sequence 7, Appl
15	182	91.5	41	1	US-08-410-353-7	Sequence 7, Appl
16	182	91.5	41	1	US-08-470-220A-7	Sequence 7, Appl
17	182	91.5	41	3	US-08-967-374-7	Sequence 7, Appl
18	182	91.5	41	4	US-09-505-991-7	Sequence 7, Appl
19	182	91.5	41	5	PCT-US95-15800-23	Sequence 23, Appl
20	182	91.5	42	1	US-08-095-162-24	Sequence 24, Appl
21	182	91.5	42	1	US-08-410-353-8	Sequence 8, Appl
22	182	91.5	42	1	US-08-470-220A-24	Sequence 24, Appl
23	182	91.5	42	3	US-08-967-374-24	Sequence 24, Appl
24	182	91.5	42	4	US-09-505-991-24	Sequence 24, Appl
25	182	91.5	44	1	US-07-701-414A-1	Sequence 1, Appl
26	182	91.5	44	1	US-07-924-034-9	Sequence 9, Appl
27	182	91.5	44	1	US-08-095-162-16	Sequence 16, Appl

us-10-021-403a-1.ra1

Mon Jul 19 13:55:14 2004

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; COUNTRY: USA
; ZIP: 97204-2988
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/062,472B
; FILING DATE: 14-MAY-1993
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: POLLEY, RICHARD J
; REGISTRATION NUMBER: 28107
; TELEPHONE: (503) 226-7391
; TELEFAX: (503) 228-9446
; INFORMATION FOR SEQ ID NO: 31:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 44 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: Peptide
;
; US-08-062-472B-31
;
; Query Match 94.5%; Score 188; DB 1; Length 44;
; Best Local Similarity 95.0%; Pred. No. 2.6e-19;
; Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
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; Qy 1 YANAIFNYSYRKVLGQLSARKLLQDIMSROQGERNOENGA 40
; Db 1 YADAIFNYSYRKVLGQLSARKLLQDIMSROQGERNOEQA 40
;
; RESULT 3
; US-09-122-171D-6
; Sequence 6, Application US/09122171D
; Patent No. 6423693
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT APPLICATION NUMBER: US/09/122,171D
; CURRENT FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: 60/062,608
; PRIOR FILING DATE: 1997-10-20
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 6
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Sus scrofa GHRH
;
; US-09-122-171D-6
;
; Query Match 94.5%; Score 188; DB 4; Length 44;
; Best Local Similarity 95.0%; Pred. No. 2.6e-19;
; Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
;
; Qy 1 YANAIFNYSYRKVLGQLSARKLLQDIMSROQGERNOENGA 40
; Db 1 YADAIFNYSYRKVLGQLSARKLLQDIMSROQGERNOEQA 40
;
; RESULT 4
; US-08-218-608-12
; Sequence 12, Application US/08218608
; Patent No. 5607859
;
; GENERAL INFORMATION:
; APPLICANT: BIEMANN, KLAUS
; APPLICANT: JUHASZ, PETER
; TITLE OF INVENTION: METHODS AND PRODUCTS FOR MASS
; TITLE OF INVENTION: SPECTROMETRIC MOLECULAR WEIGHT DETERMINATION OF POLYIONIC
; ANALYTES EMPLOYING POLYIONIC REAGENTS
; NUMBER OF SEQUENCES: 12
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: WOLF, GREENFIELD & SACKS, P.C.
; STREET: 600 ATLANTIC AVENUE
; CITY: BOSTON
; STATE: MA
; COUNTRY: USA
; ZIP: 02210
;
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/218,608
; FILING DATE: 28-MAR-1994
; CLASSIFICATION: 436
; ATTORNEY/AGENT INFORMATION:
; NAME: GATES, EDWARD R.
; REGISTRATION NUMBER: 31,616
; REFERENCE/DOCKET NUMBER: M0656/7013
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 617-720-3500
; TELEFAX: 617-720-2441
; INFORMATION FOR SEQ ID NO: 12:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 44 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; HYPOTHETICAL: NO
; ANTI-SENSE: NO
; ORIGINAL SOURCE:
; ORGANISM: NONE (SYNTHETIC BOVINE GROWTH HORMONE
; ORGANISM: RELEASING FACTOR)
;
; US-08-218-608-12
;
; Query Match 93.0%; Score 185; DB 1; Length 44;
; Best Local Similarity 92.5%; Pred. No. 6.9e-19;
; Matches 37; Conservative 2; Mismatches 1; Indels 0; Gaps 0;
;
; Qy 1 YANAIFNYSYRKVLGQLSARKLLQDIMSROQGERNOENGA 40
; Db 1 YADAIFNYSYRKVLGQLSARKLLQDIMSROQGERNOEQA 40
;
; RESULT 5
; US-08-062-472B-29
; Sequence 29, Application US/08062472B
; Patent No. 5695954
; GENERAL INFORMATION:
; APPLICANT: Sherwood, Nancy G M
; APPLICANT: Parker, David B
; APPLICANT: McKory, John E
; APPLICANT: Iescheid, David W
; TITLE OF INVENTION: DNA ENCODING TWO FISH NEUROPEPTIDES
; NUMBER OF SEQUENCES: 49
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: KLARQUIST, SPARKMAN, CAMPBELL, LEIGH &
; ADDRESSEE: WHINSTON, LLP
; STREET: ONE WORLD TRADE CENTER, SUITE 1600, 121 S.W.
; CITY: PORTLAND
; STATE: OREGON
; COUNTRY: USA
; ZIP: 97204-2988
;
; US-08-062-472B-29

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COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/062,472B
FILING DATE: 14-MAY-1993
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: POLLEY, RICHARD J
REGISTRATION NUMBER: 28107
TELEPHONE: (503) 226-7391
TELEFAX: (503) 228-9446
INFORMATION FOR SEQ ID NO: 29:
SEQUENCE CHARACTERISTICS:
LENGTH: 44 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: peptide
US-08-062-472B-29

Query Match          93.0%; Score 185; DB 1; Length 44;
Best Local Similarity 92.5%; Pred. No. 6.9e-19;
Matches 37; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSRQOGERNOENGA 40
Db 1 YADAIFTSYRKVLGQLSARKLLQDIMNRQOGERNOENGA 40

RESULT 6
US-08-062-472B-30
; Sequence 30, Application US/08062472B
; Patent No. 5695954
; GENERAL INFORMATION:
; APPLICANT: Sherwood, Nancy G M
; APPLICANT: Parker, David B
; APPLICANT: McKory, John E
; APPLICANT: Lescheid, David W
; TITLE OF INVENTION: DNA ENCODING TWO FISH NEUROPEPTIDES
; NUMBER OF SEQUENCES: 49
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: KLARQUIST, SPARKMAN, CAMPBELL, LEIGH &
; ADDRESSEE: WHINSTON, LLP
; STREET: ONE WORLD TRADE CENTER, SUITE 1600, 121 S.W.
; CITY: PORTLAND
; STATE: OREGON
; COUNTRY: USA
; ZIP: 97204-2988
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/062,472B
FILING DATE: 14-MAY-1993
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: POLLEY, RICHARD J
REGISTRATION NUMBER: 28107
TELEPHONE: (503) 226-7391
TELEFAX: (503) 228-9446
INFORMATION FOR SEQ ID NO: 30:
SEQUENCE CHARACTERISTICS:
LENGTH: 44 amino acids
TYPE: amino acid
STRANDEDNESS: single
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TOPOLOGY: linear
MOLECULE TYPE: peptide
US-08-062-472B-30

Query Match          93.0%; Score 185; DB 1; Length 44;
Best Local Similarity 92.5%; Pred. No. 6.9e-19;
Matches 37; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSRQOGERNOENGA 40
Db 1 YADAIFTSYRKVLGQLSARKLLQDIMNRQOGERNOENGA 40

RESULT 7
US-09-122-171D-5
; Sequence 5, Application US/09122171D
; Patent No. 6423693
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT APPLICATION NUMBER: US/09/122,171D
; CURRENT FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: 60/062,608
; PRIOR FILING DATE: 1997-10-20
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 5
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Bos taurus GHRH
US-09-122-171D-5

Query Match          93.0%; Score 185; DB 4; Length 44;
Best Local Similarity 92.5%; Pred. No. 6.9e-19;
Matches 37; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSRQOGERNOENGA 40
Db 1 YADAIFTSYRKVLGQLSARKLLQDIMNRQOGERNOENGA 40

RESULT 8
US-09-122-171D-9
; Sequence 9, Application US/09122171D
; Patent No. 6423693
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT APPLICATION NUMBER: US/09/122,171D
; CURRENT FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: 60/062,608
; PRIOR FILING DATE: 1997-10-20
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 9
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Capra hircus GHRH
US-09-122-171D-9

Query Match          93.0%; Score 185; DB 4; Length 44;
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; CURRENT FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: 60/062,608
; PRIOR FILING DATE: 1997-10-20
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 7
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Ovis Aries GHRH
US-09-122-171D-7

Query Match          92.5%; Score 184; DB 4; Length 44;
Best Local Similarity 90.0%; Pred. No. 9.4e-19;
Matches 36; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

QY      1 YANAIFTSYRKVLGQLSARKLLQDIMSRQOGERNOENGA 40
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Db      1 YADAIFTSYRKILGQLSARKLLQDIMNRQOGERNOEQGA 40
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RESULT 11
US-08-410-353-2
; Sequence 2, Application US/08410353
; Patent No. 5700775
; GENERAL INFORMATION:
; APPLICANT: Gutniak, Mark K.
; APPLICANT: Coolidge, Thomas R.
; APPLICANT: Wagner, Fred W.
; APPLICANT: Recker, Robert R.
; TITLE OF INVENTION: Method and Treatment Composition for
; TITLE OF INVENTION: Decreasing Patient Time in Catabolic State After Traumatic
; TITLE OF INVENTION: Injury
; NUMBER OF SEQUENCES: 8
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Zarley, McKee, Thome, Voorhees & Sease
; STREET: 801 Grand Ave. Suite 3200
; CITY: Des Moines
; STATE: Iowa
; COUNTRY: United States
; ZIP: 50309
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/410,353
; FILING DATE: 24-MAR-1995
; CLASSIFICATION: 514
; ATTORNEY/AGENT INFORMATION:
; NAME: Nebel, Heidi Sease
; REGISTRATION NUMBER: 37,719
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 515-288-3667
; TELEFAX: 515-288-1338
; INFORMATION FOR SEQ ID NO: 2:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 40 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: not relevant
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
; ANTI-SENSE: NO
; FRAGMENT TYPE: N-terminal
US-08-410-353-2

Query Match          91.5%; Score 182; DB 1; Length 40;
Best Local Similarity 92.5%; Pred. No. 1.6e-18;
Matches 37; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

; CURRENT FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: 60/062,608
; PRIOR FILING DATE: 1997-10-20
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 7
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Ovis Aries GHRH
US-09-122-171D-7

Query Match          92.5%; Score 184; DB 1; Length 44;
Best Local Similarity 90.0%; Pred. No. 9.4e-19;
Matches 36; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

QY      1 YANAIFTSYRKVLGQLSARKLLQDIMSRQOGERNOENGA 40
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Db      1 YADAIFTSYRKILGQLSARKLLQDIMNRQOGERNOEQGA 40
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RESULT 9
US-08-062-472B-28
; Sequence 28, Application US/08062472B
; Patent No. 5695954
; GENERAL INFORMATION:
; APPLICANT: Sherwood, Nancy G M
; APPLICANT: Parker, David B
; APPLICANT: McRory, John E
; APPLICANT: Lescheld, David W
; TITLE OF INVENTION: DNA ENCODING TWO FISH NEUROPEPTIDES
; NUMBER OF SEQUENCES: 49
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: KLARQUIST, SPARKMAN, CAMPBELL, LEIGH &
; ADDRESSEE: WHINSTON, LLP
; STREET: ONE WORLD TRADE CENTER, SUITE 1600, 121 S.W.
; CITY: SALMON STREET
; STATE: OREGON
; COUNTRY: USA
; ZIP: 97204-2988
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/062,472B
; FILING DATE: 14-MAY-1993
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: POLLEY, RICHARD J
; REGISTRATION NUMBER: 28107
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (503) 226-7391
; TELEFAX: (503) 228-9446
; INFORMATION FOR SEQ ID NO: 28:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 44 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
US-08-062-472B-28

Query Match          92.5%; Score 184; DB 1; Length 44;
Best Local Similarity 90.0%; Pred. No. 9.4e-19;
Matches 36; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

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Db      1 YADAIFTSYRKILGQLSARKLLQDIMNRQOGERNOEQGA 40
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RESULT 10
US-09-122-171D-7
; Sequence 7, Application US/09122171D
; Patent No. 6423693
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Dragnia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT APPLICATION NUMBER: US/09/122,171D
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QY 1 YANAFTNSYRKVLGQLSARKLLQDIMSRRQOGERNOENGA 40
Db 1 YADAFTNSYRKVLGQLSARKLLQDIMSRRQOGERNOENGA 40

RESULT 12
US-08-493-594-2
; Sequence 2, Application US/08493594
; Patent No. 5846936
; GENERAL INFORMATION:
; APPLICANT: Felix, Arthur M
; APPLICANT: Heimer, Edgar P
; TITLE OF INVENTION: GROWTH HORMONE RELEASING FACTOR ANALOGS
; NUMBER OF SEQUENCES: 38
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Hoffmann-La Roche Inc.
; STREET: 340 Kingsland Street
; CITY: Nutley
; STATE: New Jersey
; COUNTRY: United States of America
; ZIP: 07110-1199
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION NUMBER: US/08/493,594
; FILING DATE:
; CLASSIFICATION: 514
; PRIOR APPLICATION NUMBER: US/08/274,656
; FILING DATE:
; APPLICATION NUMBER: US/08/154,579
; FILING DATE:
; APPLICATION NUMBER: US/07/993,489
; FILING DATE:
; APPLICATION NUMBER: US/07/682,835
; FILING DATE:
; ATTORNEY/AGENT INFORMATION:
; NAME: Kass, Alan P
; REGISTRATION NUMBER: 32142
; REFERENCE/DOCKET NUMBER: 8390
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (201)235-4205
; TELEFAX: (201)235-3500
; INFORMATION FOR SEQ ID NO: 2:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 40 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
US-08-493-594-2

Query Match 91.5%; Score 182; DB 2; Length 40;
Best Local Similarity 92.5%; Pred. No. 1.6e-18;
Matches 37; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 YANAFTNSYRKVLGQLSARKLLQDIMSRRQOGERNOENGA 40
Db 1 YADAFTNSYRKVLGQLSARKLLQDIMSRRQOGERNOENGA 40

RESULT 13
US-09-122-171D-10
; Sequence 10, Application US/09122171D
; Patent No. 6423693
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use

; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT APPLICATION NUMBER: US/09/122,171D
; CURRENT FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: 60/062,608
; PRIOR FILING DATE: 1997-10-20
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 10
; LENGTH: 40
; TYPE: PRT
; ORGANISM: Homo sapiens GHRH
US-09-122-171D-10

Query Match 91.5%; Score 182; DB 4; Length 40;
Best Local Similarity 92.5%; Pred. No. 1.6e-18;
Matches 37; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 YANAFTNSYRKVLGQLSARKLLQDIMSRRQOGERNOENGA 40
Db 1 YADAFTNSYRKVLGQLSARKLLQDIMSRRQOGERNOENGA 40

RESULT 14
US-08-095-162-7
; Sequence 7, Application US/08095162
; Patent No. 5512459
; GENERAL INFORMATION:
; APPLICANT: Wagner, Fred W.
; APPLICANT: Stout, Jay
; APPLICANT: Henriksen, Dennis
; APPLICANT: Partridge, Bruce
; APPLICANT: Manning, Shane
; TITLE OF INVENTION: Enzymatic Method for Modification of
; TITLE OF INVENTION: Recombinant Polypeptides
; NUMBER OF SEQUENCES: 26
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Merchant & Gould
; STREET: 3100 No. 5512459west Center
; CITY: Minneapolis
; STATE: MN
; COUNTRY: USA
; ZIP: 55402
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/095,162
; FILING DATE: 20-JUL-1993
; CLASSIFICATION: 514
; ATTORNEY/AGENT INFORMATION:
; NAME: Nelson, Albin J.
; REGISTRATION NUMBER: 28,659
; REFERENCE/DOCKET NUMBER: 8648.32-US01
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 612-332-5300
; TELEFAX: 612-332-9081
; INFORMATION FOR SEQ ID NO: 7:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 41 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; IMMEDIATE SOURCE:
; CLONE: GRF (1-41) (Growth Hormone Releasing Factor)
US-08-095-162-7

Query Match 91.5%; Score 182; DB 1; Length 41;
Best Local Similarity 92.5%; Pred. No. 1.7e-18;
Matches 37; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGSNQGNGA 40
||:|||||
Db 1 YADAIFTNYSYRKVLGQLSARKLLQDIMSROQGSNQGNGA 40
||:|||||

RESULT 15

US-08-410-353-7
; Sequence 7, Application US/08410353
; Patent No. 5700775
; GENERAL INFORMATION:
; APPLICANT: Gutniak, Mark K.
; APPLICANT: Coolidge, Thomas R.
; APPLICANT: Wagner, Fred W.
; APPLICANT: Recker, Robert R.
; TITLE OF INVENTION: Method and Treatment Composition for
; Decreasing Patient Time in Catabolic State After Traumatic
; TITLE OF INVENTION: Injury
; NUMBER OF SEQUENCES: 8
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Zarley, McKee, Thome, Voorhees & Sease
; STREET: 801 Grand Ave. Suite 3200
; CITY: Des Moines
; STATE: Iowa
; COUNTRY: United States
; ZIP: 50309
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/410,353
; FILING DATE: 24-MAR-1995
; CLASSIFICATION: 514
; ATTORNEY/AGENT INFORMATION:
; NAME: Nebel, Heidi Sease
; REGISTRATION NUMBER: 37,719
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 515-288-3667
; TELEFAX: 515-288-1338
; INFORMATION FOR SEQ ID NO: 7:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 41 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: not relevant
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
; ANTI-SENSE: NO
; FRAGMENT TYPE: N-terminal
US-08-410-353-7

Query Match 91.5%; Score 182; DB 1; Length 41;
Best Local Similarity 92.5%; Pred. No. 1.7e-18;
Matches 37; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGSNQGNGA 40
||:|||||
Db 1 YADAIFTNYSYRKVLGQLSARKLLQDIMSROQGSNQGNGA 40
||:|||||

Search completed: July 12, 2004, 20:54:54
Job time : 16 secs

1	199	100.0	40	14	US-10-021-403A-1	Sequence 1, Appl
2	188	94.5	40	12	US-10-359-919A-10	Sequence 10, Appl
3	188	94.5	40	12	US-10-315-907A-10	Sequence 10, Appl
4	188	94.5	40	14	US-10-262-141-14	Sequence 14, Appl
5	188	94.5	40	14	US-10-262-377-14	Sequence 14, Appl
6	188	94.5	40	15	US-10-395-709-5	Sequence 5, Appl
7	188	94.5	40	15	US-10-395-709-10	Sequence 10, Appl
8	188	94.5	44	14	US-10-424-759-6	Sequence 6, Appl
9	185	93.0	44	14	US-10-124-759-5	Sequence 5, Appl
10	185	93.0	44	14	US-10-124-759-9	Sequence 9, Appl
11	184	92.5	44	14	US-10-124-759-7	Sequence 7, Appl
12	182	91.5	40	14	US-10-124-759-10	Sequence 10, Appl
13	182	91.5	44	9	US-09-316-505-1	Sequence 1, Appl
14	182	91.5	44	12	US-09-858-880-6	Sequence 6, Appl
15	182	91.5	44	13	US-10-016-403-B	Sequence 8, Appl

GENERAL INFORMATION

PUBLICATION NO. US20040038918A1
GENERAL INFORMATION.

GENERAL INFORMATION

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; APPLICANT: Baylor College of Medicine
; TITLE OF INVENTION: Modified Pituitary Gland Development in offspring from Expectant
; TITLE OF INVENTION: animals treated with GHRH
; FILE REFERENCE: 108328.00087 - AVSI-0019
; CURRENT APPLICATION NUMBER: US/10/359,919A
; CURRENT FILING DATE: 2003-02-06
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 10
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: Amino acid sequence for porcine growth hormone releasing hormone.
US-10-359-919A-10

Query Match          94.5%; Score 188; DB 12; Length 40;
Best Local Similarity 95.0%; Pred. No. 9.6e-20;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 YANAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40
Db 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40

RESULT 3
US-10-315-907A-10
; Sequence 10, Application US/10315907A
; Publication No. US20040057941A1
; GENERAL INFORMATION:
; APPLICANT: Advisys
; TITLE OF INVENTION: PLASMID MEDIATED SUPPLEMENTATION FOR TREATING CHRONICALLY ILL SUE
; FILE REFERENCE: 108328.00073 - AVSI-0007
; CURRENT APPLICATION NUMBER: US/10/315,907A
; CURRENT FILING DATE: 2002-12-10
; NUMBER OF SEQ ID NOS: 25
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 10
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: Amino acid sequence for porcine growth hormone releasing hormone.
US-10-315-907A-10

Query Match          94.5%; Score 188; DB 12; Length 40;
Best Local Similarity 95.0%; Pred. No. 9.6e-20;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 YANAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40
Db 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40

RESULT 4
US-10-262-141-14
; Sequence 14, Application US/10262141
; Publication No. US20030129172A1
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert
; TITLE OF INVENTION: Super-Active Porcine Growth Hormone Releasing Hormone Analog
; FILE REFERENCE: P01857US1
; CURRENT APPLICATION NUMBER: US/10/262,141
; CURRENT FILING DATE: 2002-09-20
; PRIOR APPLICATION NUMBER: US 60/145,624
; PRIOR FILING DATE: 1999-07-26
; PRIOR APPLICATION NUMBER: PCT/US00/20127
; PRIOR FILING DATE: 2000-07-24
; NUMBER OF SEQ ID NOS: 14
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 14
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is the artificial sequence for the (1-44)NH2
US-10-395-709-5

Query Match          94.5%; Score 188; DB 15; Length 40;
Best Local Similarity 95.0%; Pred. No. 9.6e-20;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 YANAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40
Db 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40
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; TYPE: PRT
; ORGANISM: PIG
US-10-262-141-14

Query Match          94.5%; Score 188; DB 14; Length 40;
Best Local Similarity 95.0%; Pred. No. 9.6e-20;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 YANAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40
Db 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40

RESULT 5
US-10-262-377-14
; Sequence 14, Application US/10262377
; Publication No. US20030148948A1
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert
; TITLE OF INVENTION: Super-Active Porcine Growth Hormone Releasing Hormone Analog
; FILE REFERENCE: P01857US1
; CURRENT APPLICATION NUMBER: US/10/262,377
; CURRENT FILING DATE: 2000-07-24
; PRIOR APPLICATION NUMBER: US 60/145,624
; PRIOR FILING DATE: 1999-07-26
; PRIOR APPLICATION NUMBER: PCT/US00/20127
; PRIOR FILING DATE: 2000-07-24
; NUMBER OF SEQ ID NOS: 14
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 14
; LENGTH: 40
; TYPE: PRT
; ORGANISM: PIG
US-10-262-377-14

Query Match          94.5%; Score 188; DB 14; Length 40;
Best Local Similarity 95.0%; Pred. No. 9.6e-20;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 YANAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40
Db 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40

RESULT 6
US-10-395-709-5
; Sequence 5, Application US/10395709
; Publication No. US20040014645A1
; GENERAL INFORMATION:
; APPLICANT: Advisys
; TITLE OF INVENTION: INCREASED DELIVERY OF A NUCLEIC ACID CONSTRUCT IN VIVO BY THE PO
; TITLE OF INVENTION: GLUTAMATE ("PLG") SYSTEM
; FILE REFERENCE: 108328.00115 - AVSI-0021P1
; CURRENT APPLICATION NUMBER: US/10/395,709
; CURRENT FILING DATE: 2003-03-24
; NUMBER OF SEQ ID NOS: 25
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 5
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is the artificial sequence for the (1-44)NH2
US-10-395-709-5

Query Match          94.5%; Score 188; DB 15; Length 40;
Best Local Similarity 95.0%; Pred. No. 9.6e-20;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 YANAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40
Db 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40
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RESULT 7
US-10-395-709-10
; Sequence 10, Application US/10395709
; Publication No. US20040014645A1
; GENERAL INFORMATION:
; APPLICANT: Advisys
; TITLE OF INVENTION: INCREASED DELIVERY OF A NUCLEIC ACID CONSTRUCT IN VIVO BY THE POI
; TITLE OF INVENTION: GLUTAMATE ("PLG") SYSTEM
; FILE REFERENCE: 108328.00115 - AVSI-0021P1
; CURRENT APPLICATION NUMBER: US/10/395,709
; CURRENT FILING DATE: 2003-03-24
; NUMBER OF SEQ ID NOS: 25
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 10
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is the amino acid sequence for porcine growth hormone releas
; OTHER INFORMATION: ing hormone.
US-10-395-709-10

Query Match          94.5%; Score 188; DB 15; Length 40;
Best Local Similarity 95.0%; Pred. No. 9.6e-20;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40
Db 1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40

RESULT 8
US-10-124-759-6
; Sequence 6, Application US/10124759
; Publication No. US20030055017A1
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT APPLICATION NUMBER: US/10/124,759
; CURRENT FILING DATE: 2002-04-16
; PRIOR FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 6
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Sus scrofa GHRH
US-10-124-759-6

Query Match          94.5%; Score 188; DB 14; Length 44;
Best Local Similarity 95.0%; Pred. No. 1.1e-19;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40
Db 1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40

RESULT 9
US-10-124-759-5
; Sequence 5, Application US/10124759
; Publication No. US20030055017A1
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
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; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT APPLICATION NUMBER: US/10/124,759
; CURRENT FILING DATE: 2002-04-16
; PRIOR FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 5
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Bos taurus GHRH
US-10-124-759-5

Query Match          93.0%; Score 185; DB 14; Length 44;
Best Local Similarity 92.5%; Pred. No. 2.9e-19;
Matches 37; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

Qy 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40
Db 1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40

RESULT 10
US-10-124-759-9
; Sequence 9, Application US/10124759
; Publication No. US20030055017A1
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT APPLICATION NUMBER: US/10/124,759
; CURRENT FILING DATE: 2002-04-16
; PRIOR FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 9
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Capra hircus GHRH
US-10-124-759-9

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Best Local Similarity 92.5%; Pred. No. 2.9e-19;
Matches 37; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

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Db 1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40

RESULT 11
US-10-124-759-7
; Sequence 7, Application US/10124759
; Publication No. US20030055017A1
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
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; CURRENT APPLICATION NUMBER: US/10/124,759
; CURRENT FILING DATE: 2002-04-16
; PRIOR APPLICATION NUMBER: US/09/122,171
; PRIOR FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: Patentin version 3.1
; SEQ ID NO 7
; TYPE: PRT
; ORGANISM: Ovis Aries GHRH
US-10-124-759-7

Query Match          92.5%; Score 184; DB 14; Length 44;
Best Local Similarity 90.0%; Pred. No. 4e-19;
Matches 36; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

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Db 1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGGERNOEQA 40

RESULT 12
US-10-124-759-10
; Sequence 10, Application US/10124759
; Publication No. US20030055017A1
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT APPLICATION NUMBER: US/10/124,759
; CURRENT FILING DATE: 2002-04-16
; PRIOR APPLICATION NUMBER: US/09/122,171
; PRIOR FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: Patentin version 3.1
; SEQ ID NO 10
; TYPE: PRT
; ORGANISM: Homo sapiens GHRH
US-10-124-759-10

Query Match          91.5%; Score 182; DB 14; Length 40;
Best Local Similarity 92.5%; Pred. No. 7e-19;
Matches 37; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGGERNOENGA 40
Db 1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGGERNOEQA 40

RESULT 13
US-09-316-505-1
; Sequence 1, Application US/09316505
; Patent No. US20020111461A1
; GENERAL INFORMATION:
; APPLICANT: Burnier, John P.
; APPLICANT: Clark, Ross G.
; APPLICANT: Elias, Kathleen A.
; APPLICANT: McDowell, Robert S.
; APPLICANT: Rawson, Thomas E.
; APPLICANT: Somers, Todd C.
; APPLICANT: Stanley, Mark S.
; TITLE OF INVENTION: LOW MOLECULAR WEIGHT PEPTIDOMIMETIC GROWTH HORMONE SECRETAGOGUES
; FILE REFERENCE: P0850D2
; CURRENT APPLICATION NUMBER: US/09/316,505
; CURRENT FILING DATE: 1999-05-21
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; PRIOR APPLICATION NUMBER: US 09/057,074
; PRIOR FILING DATE: 1998-04-08
; NUMBER OF SEQ ID NOS: 2
; SEQ ID NO 1
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Homosapiens
US-09-316-505-1

Query Match          91.5%; Score 182; DB 9; Length 44;
Best Local Similarity 92.5%; Pred. No. 7.9e-19;
Matches 37; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGGERNOENGA 40
Db 1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGGERNOEQA 40

RESULT 14
US-09-858-880-6
; Sequence 6, Application US/09858880
; Publication No. US20020061838A1
; GENERAL INFORMATION:
; APPLICANT: Holmquist, Daniel
; APPLICANT: Dormady, Daniel
; TITLE OF INVENTION: Peptide Pharmaceutical Formulations
; FILE REFERENCE: 1627.020US1
; CURRENT APPLICATION NUMBER: US/09/858,880
; CURRENT FILING DATE: 2001-05-17
; PRIOR APPLICATION NUMBER: US 60/205,377
; PRIOR FILING DATE: 2000-05-17
; PRIOR APPLICATION NUMBER: US 60/205,262
; PRIOR FILING DATE: 2000-05-19
; NUMBER OF SEQ ID NOS: 13
; SOFTWARE: FastSeq for Windows Version 4.0
; SEQ ID NO 6
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Homo sapiens
; FEATURE:
; NAME/KEY: SITE
; LOCATION: (44)...(44)
; OTHER INFORMATION: Xaa = Leu-NH2
US-09-858-880-6

Query Match          91.5%; Score 182; DB 12; Length 44;
Best Local Similarity 92.5%; Pred. No. 7.9e-19;
Matches 37; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

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Db 1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGGERNOEQA 40

RESULT 15
US-10-016-403-8
; Sequence 8, Application US/10016403
; Publication No. US20020107505A1
; GENERAL INFORMATION:
; APPLICANT: Holladay, Leslie A.
; TITLE OF INVENTION: MODIFICATION OF POLYPEPTIDE DRUGS TO INCREASE ELECTROTRANSPORT FLUX
; NUMBER OF SEQUENCES: 10
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Stroud, Stroud, Willink, Thompson & Howard
; STREET: 25 West Main Street
; CITY: Madison
; STATE: WI
; COUNTRY: USA
; ZIP: 53701-2236
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
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; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/10/016,403
; FILING DATE: 10-Dec-2001
; CLASSIFICATION: <Unknown>
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 08/466,610
; FILING DATE: 1995-JUN-06
; ATTORNEY/AGENT INFORMATION:
; NAME: Frenchick, Grady J.
; REGISTRATION NUMBER: 29,018
; REFERENCE/DOCKET NUMBER: 8734.28
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 608-257-2281
; TELEFAX: 608-257-7643
; INFORMATION FOR SEQ ID NO: 8:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 44 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; FEATURE:
; NAME/KEY: Peptide
; LOCATION: 1..44
; OTHER INFORMATION: /note= "human growth hormone
; releasing hormone"
; FEATURE:
; NAME/KEY: Binding-site
; LOCATION: 44
; OTHER INFORMATION: /note= "carboxy terminal amide"
; SEQUENCE DESCRIPTION: SEQ ID NO: 8:
US-10-016-403-8

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Query Match      91.5%; Score 182; DB 13; Length 44;
Best Local Similarity 92.5%; Pred. No. 7.9e-19;
Matches 37; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy      1 YANAIFTNSYRKVLGQLSARKLLQDIMSRQQGSRNQENGA 40
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Db      1 YADAIFTNSYRKVLGQLSARKLLQDIMSRQQGSRNQERGA 40

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Search completed: July 12, 2004, 20:57:45
Job time : 43.5 secs

GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: July 12, 2004, 20:46:47 ; Search time 13 Seconds
(without alignments)
295.974 Million cell updates/sec

Title: US-10-021-403A-1

Perfect score: 199

Sequence: 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 283366 seqs, 96191526 residues

Total number of hits satisfying chosen parameters: 283366

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

PIR 78:*

1: pir1:*

2: pir2:*

3: pir3:*

4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	ID	Description
1	188	94.5	44	1 RHQP	somatoliberin - pi
2	185	93.0	44	1 RHQS	somatoliberin - bo
3	182	91.5	108	1 RHUS	somatoliberin prec
4	146	73.4	104	2 A32731	somatoliberin prec
5	111.5	56.0	103	2 A41410	somatoliberin prec
6	87	43.7	173	2 S34767	neuropeptides prec
7	85	42.7	175	2 A37786	pituitary adenylat
8	80	40.2	145	2 A60038	vasoactive intesti
9	80	40.2	170	1 VRHU	vasoactive intesti
10	76	38.2	55	1 VRGP	vasoactive intesti
11	76	38.2	176	2 A34044	vasoactive intesti
12	74	37.2	170	1 VRRT	pituitary adenylat
13	74	37.2	170	2 A60037	vasoactive intesti
14	73	36.7	55	1 VRBO	vasoactive intesti
15	73	36.7	55	1 VRSH	vasoactive intesti
16	71	35.7	176	2 I84638	vasoactive intesti
17	69	34.7	55	1 VRRB	pituitary adenylat
18	69	34.7	58	1 VRPG	vasoactive intesti
19	65	32.7	28	2 A38232	vasoactive intesti
20	62.5	31.4	165	1 VRCH	vasoactive intesti
21	61	30.7	195	2 I50456	vasoactive intesti
22	59	29.6	151	1 GCCH	pituitary adenylat
23	59	29.6	206	2 I51301	glucagon precursor
24	59	29.6	537	2 E96606	proglucagon - chic
25	58	29.1	35	1 HWGD	hypothetical prote
26	56	28.1	38	1 HWGH	exendin-2 - Gila m
27	55	27.6	429	2 T32290	exendin-1 - Mexica
28	54	27.1	27	1 SECH	hypothetical prote
29	54	27.1	28	2 B60071	secretin - chicken
					vasoactive intesti

30	54	27.1	28	2 A60304	vasoactive intesti
31	54	27.1	38	2 A49165	pituitary adenylat
32	54	27.1	433	2 D75632	probable hemolysin
33	52.5	26.4	249	2 T04128	14-3-3 protein, is
34	52	26.1	28	2 A60303	vasoactive intesti
35	52	26.1	38	2 A61070	pituitary adenylat
36	52	26.1	3449	2 T01083	hypothetical prote
37	51.5	25.9	1478	2 C82689	helicase, ATP depe
38	51	25.6	181	2 S42380	hypothetical prote
39	51	25.6	300	2 F84594	hypothetical prote
40	51	25.6	418	2 G95231	competence-induced
41	51	25.6	432	2 A99096	conserved hypochet
42	51	25.6	507	2 C82371	ComM-related prote
43	51	25.6	581	2 B87768	protein F54C1.1 [1
44	51	25.6	1400	2 T20904	hypothetical prote
45	51	25.6	1427	2 T20903	hypothetical prote

ALIGNMENTS

RESULT 1

RHQP

somatoliberin - pig

N;Alternate names: growth hormone-releasing factor

C;Species: Sus scrofa domestica (domestic pig)

C;Date: 28-Aug-1985 #sequence_revision 28-Aug-1985 #text_change 21-Nov-1997

C;Accession: A01553

R;Bohlen, P.; Esch, F.; Brazeau, P.; Ling, N.; Guillemin, R.

Biochem. Biophys. Res. Commun. 116, 726-734, 1983

A;Title: Isolation and characterization of the porcine hypothalamic growth hormone relea

A;Reference number: A01553; MUID:84079886; PMID:6418166

A;Accession: A01553

A;Molecule type: protein

A;Residues: 1-44 <BOH>

C;Comment: The carboxyl-amidated somatoliberin is twice as active as that having a free

C;Comment: This protein was isolated from hypothalamus.

C;Superfamily: glucagon

C;Keywords: amidated carboxyl end; duplication; hypothalamus

F;44/Modified site: amidated carboxyl end (Leu) #status experimental

Query Match 94.5%; Score 188; DB 1; Length 44;
Best Local Similarity 95.0%; Pred. No. 1.5e-18;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40

Db 1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40

RESULT 2

RHQS

somatoliberin - bovine

N;Alternate names: growth hormone-releasing factor

C;Species: Bos primigenius taurus (cattle)

C;Date: 28-Aug-1985 #sequence_revision 28-Aug-1985 #text_change 21-Nov-1997

C;Accession: A01554

R;Esch, F.; Bohlen, P.; Ling, N.; Brazeau, P.; Guillemin, R.

Biochem. Biophys. Res. Commun. 117, 772-779, 1983

A;Title: Isolation and characterization of the bovine hypothalamic growth hormone relea

A;Reference number: A01554; MUID:84127993; PMID:6421287

A;Accession: A01554

A;Molecule type: protein

A;Residues: 1-44 <ESC>

C;Comment: This protein was isolated from hypothalamus.

C;Superfamily: glucagon

C;Keywords: amidated carboxyl end; duplication; hypothalamus

F;44/Modified site: amidated carboxyl end (Leu) #status experimental

Query Match

Best Local Similarity 93.0%; Score 185; DB 1; Length 44;

Matches 37; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

Mon Jul 19 13:55:15 2004

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGERNOENGA 40
||:|||||||||||||||||||||||||||||||||||||||
Db 1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGERNOENGA 40
||:|||||||||||||||||||||||||||||||||||||||
RESULT 3
RHUS
somatoliberin precursor [validated] - human
N:Alternate names: GRF; growth hormone-releasing factor; somatotocinin
C:Species: Homo sapiens (man)
C:Date: 17-Dec-1982 #sequence_revision 19-Feb-1984 #text_change 08-Dec-2000
C:Accession: A21902; A93959; B93959; A93994; A94269; I37434; I37435; A01552
R:Mayo, K.E.; Cerelli, G.M.; Lebo, R.V.; Bruce, B.D.; Rosenfeld, M.G.; Evans, R.M.
Proc. Natl. Acad. Sci. U.S.A. 82, 63-67, 1985
A:Title: Gene encoding human growth hormone-releasing factor precursor: structure, sequence
A:Reference number: A21902; MUID:85113171; PMID:3918305
A:Accession: A21902
A:Molecule type: DNA
A:Residues: 1-108 <MAY>
A:Cross-references: GB:I00134
R:Gubler, U.; Monahan, J.J.; Lomedico, P.T.; Bhatt, R.S.; Collier, K.J.; Hoffman, B.J.;
Proc. Natl. Acad. Sci. U.S.A. 80, 4311-4314, 1983
A:Title: Cloning and sequence analysis of cDNA for the precursor of human growth hormone
A:Reference number: A93959; MUID:83273612; PMID:6192430
A:Accession: A93959
A:Molecule type: mRNA
A:Residues: 1-108 <GUB>
A:Cross-references: GB:L00137; GB:K00646; NID:G337130; PIDN:AAA52608.1; PID:G337132
A:Accession: B93959
A:Molecule type: mRNA
A:Residues: 1-102/104-108 <GU2>
A:Cross-references: GB:L00137; GB:K00645; NID:G337130; PIDN:AAA52609.1; PID:G337133
A:Note: alternative splicing produces two somatoliberin precursors
R:Ling, N.; Esch, F.; Bohlen, P.; Brazeau, P.; Wehrenberg, W.B.; Guillemin, R.
Proc. Natl. Acad. Sci. U.S.A. 81, 4302-4306, 1984
A:Title: Isolation, primary structure, and synthesis of human hypothalamic somatotocinin:
A:Reference number: A93994; MUID:84272626; PMID:6431406
A:Accession: A93994
A:Molecule type: protein
A:Residues: 32-75 <LIN>
A:Experimental source: hypothalamus
R:Guillemin, R.; Brazeau, P.; Bohlen, P.; Esch, F.; Ling, N.; Wehrenberg, W.B.
Science 218, 585-587, 1982
A:Title: Growth hormone-releasing factor from a human pancreatic tumor that caused acromegaly
A:Reference number: A94269; MUID:83016666; PMID:6812220
A:Accession: A94269
A:Molecule type: protein
A:Residues: 32-75 <GUI>
R:Mayo, K.E.; Vale, W.; Rivier, J.; Rosenfeld, M.G.; Evans, R.M.
Nature 306, 86-88, 1983
A:Title: Expression-cloning and sequence of a cDNA encoding human growth hormone-releasing factor
A:Reference number: I37434; MUID:84039819; PMID:6415488
A:Accession: I37434
A>Status: translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 6-91, 'D', 93-101 <RES>
A:Cross-references: EMBL:X00094; NID:G31901; PIDN:CAA24955.1; PID:G13335088
A:Accession: I37435
A>Status: translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 32-75 <R2>
A:Cross-references: EMBL:X00094; NID:G31901; PIDN:CAA24956.1; PID:G13335089
C:Comment: The amino-terminal residue of somatoliberin is essential for activity.
C:Comment: Both natural and synthetic somatoliberins stimulate the secretion of only somatotocinin.
C:Genetics:
A:Gene: GDB:GHRH; GHRF
A:Cross-references: GDB:119270; OMIM:139190
A:Map position: 20q11.2-20q11.2
A:Introns: 28/2; 63/2; 103/2
C:Superfamily: glucagon
C:Keywords: alternative splicing; amidated carboxyl end; duplication; hormone
F:1-108/Product: somatoliberin precursor, splice form 1 #status predicted <Sp1>
F:1-102,104-108/Product: somatoliberin precursor, splice form 2 #status predicted <SF2>

F:1-20/Domain: signal sequence #status predicted <Sig>
F:21-31/Domain: propeptide #status predicted <PRP>
F:32-75/Product: somatoliberin #status experimental <SLB>
F:76-108/Domain: carboxyl-terminal propeptide #status predicted <CTP>
F:75/Modified site: amidated carboxyl end (Ileu) (amide in mature form from following gly
Query Match 91.5%; Score 182; DB 1; Length 108;
Best Local Similarity 92.5%; Pred. No. 2.5e-17;
Matches 37; Conservative 1; Mismatches 2; Indels 0; Gaps 0;
QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGERNOENGA 40
||:|||||||||||||||||||||||||||||||||||||||
Db 32 YADAIFTSYRKVLGQLSARKLLQDIMSROQGERNOENGA 71
||:|||||||||||||||||||||||||||||||||||||||
RESULT 4
A32731
somatoliberin precursor - rat
N:Alternate names: growth hormone-releasing hormone
C:Species: Rattus norvegicus (Norway rat)
C:Date: 13-Jul-1990 #sequence_revision 13-Jul-1990 #text_change 16-Jul-1999
C:Accession: A32731; A41366; I67421
R:Mayo, K.E.; Cerelli, G.M.; Rosenfeld, M.G.; Evans, R.M.
Nature 314, 464-467, 1985
A:Title: Characterization of cDNA and genomic clones encoding the precursor to rat hypothalamic growth hormone-releasing hormone gene in placenta is dir
A:Reference number: A32731; MUID:85163768; PMID:3920534
A:Accession: A32731
A>Status: preliminary
A:Molecule type: DNA
A:Residues: 1-104 <MAY>
A:Cross-references: GB:X02320
R:Gonzalez-Crespo, S.; Boronati, A.
Proc. Natl. Acad. Sci. U.S.A. 88, 8749-8753, 1991
A:Title: Expression of the rat growth hormone-releasing hormone gene in placenta is dir
A:Reference number: A41366; MUID:92020929; PMID:1924334
A:Accession: A41366
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-104 <GON>
A:Cross-references: GB:W73486; NID:G204311; PIDN:AAA41220.1; PID:G204312
R:Strivastava, C.H.; Monte, B.S.; Rothrock, J.K.; Peredo, M.J.; Pescovitz, O.H.
Endocrinology 136, 1502-1508, 1995
A:Title: Presence of a spermatogenic-specific promoter in the rat growth hormone-releas
A:Reference number: I53290; MUID:95203210; PMID:7895659
A:Accession: I67421
A>Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 1-104 <RES>
A:Cross-references: EMBL:U10156; NID:G498584; PIDN:AAC52184.1; PID:G498585
C:Genetics:
A:Gene: GHRH
C:Superfamily: glucagon
C:Keywords: duplication
Query Match 73.4%; Score 146; DB 2; Length 104;
Best Local Similarity 75.7%; Pred. No. 1.7e-12;
Matches 28; Conservative 7; Mismatches 2; Indels 0; Gaps 0;
QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGERNOE 37
||:|||||||||||||||||||||||||||||||||||||||
Db 31 HADAIFTSYRKVLGQLSARKLLQDIMSROQGERNOE 67
||:|||||||||||||||||||||||||||||||||||||||
RESULT 5
A41410
somatoliberin precursor - mouse
N:Alternate names: growth hormone-releasing hormone precursor
C:Species: Mus musculus (house mouse)
C:Date: 03-Apr-1992 #sequence_revision 03-Apr-1992 #text_change 16-Jul-1999
C:Accession: A41410
R:Frohman, M.A.; Downs, T.R.; Chomczynski, P.; Frohman, L.A.
Mol. Endocrinol. 3, 1529-1536, 1989
A:Title: Cloning and characterization of mouse growth hormone-releasing hormone (GRH)

A:Reference number: A41410; MUID:90114154; PMID:2481813
A:Accession: A41410
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-103 <PRO>
A:Cross-references: GB:M31658; NID:g193635; PIDN:AAA37739.1; PID:g309276
C:Superfamily: glucagon
C:Keywords: duplication

Query Match 56.0%; Score 111.5; DB 2; Length 103;
Best Local Similarity 60.0%; Pred. No. 7.6e-08;
Matches 24; Conservative 8; Mismatches 7; Indels 1; Gaps 1;

QY 1 YANAIFTSYRKVLGOLSARKLLQDMSRQOGE 40
Db 31 HVDAFTTYNRKLLSQYARKVIQDMMNK-QGERIQEQRA 69

RESULT 6

S34767
N:Contains: precursor [similarity] - sockeye salmon
C:Species: Oncorhynchus nerka (sockeye salmon)
C>Date: 06-Jan-1995 #sequence_revision 06-Jan-1995 #text_change 08-Dec-2000
C:Accession: S34767; S34766
R:Parker, D.B.; Coe, I.R.; Dixon, G.H.; Sherwood, N.M.
Eur. J. Biochem. 215, 439-448, 1993

A:Title: Two salmon neuropeptides encoded by one brain cDNA are structurally related to
A:Reference number: S34766; MUID:93345532; PMID:8344311
A:Accession: S34767
A:Molecule type: mRNA
A:Residues: 1-173 <PAR>
A:Cross-references: EMBL:X73233; NID:g396194; PIDN:CAA51705.1; PID:g396195
A:Experimental source: clones SS/PCR 4 and SS/RACE 2

A:Accession: S34766

A:Molecule type: mRNA
A:Residues: 1-21,'S',23-60,'P',62-77,'G',79-121,'T',123-164,'N',166-170,'G',172-173 <PAR>
A:Cross-references: EMBL:X73233; NID:g396194; PIDN:CAA51705.1; PID:g396195
A:Experimental source: clones SS/PCR 5 and SS/RACE 7
A:Note: the GenBank entry ONNEUR, release 117.0, has ambiguous nucleotides for the positive
C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; duplication; neuropeptide
F:1-21/Domain: signal sequence #status predicted <SIG>
F:82-126/Product: growth hormone-releasing hormone #status predicted <GHR>
F:129-166/Product: pituitary adenylate cyclase-activating polypeptide #status predicted
F:166/Modified site: amidated carboxyl end (Lys) (in mature form from following glycine)

Query Match 43.7%; Score 87; DB 2; Length 173;
Best Local Similarity 50.0%; Pred. No. 0.00027;
Matches 16; Conservative 8; Mismatches 8; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGOLSARKLLQDMSRQOQ 32
Db 82 HADGMENKAYRKALGOLSARKYLHSLNAKRVG 113

RESULT 7

A37786
N:Contains: Rattus norvegicus (Norway rat)
C:Species: Rattus norvegicus (Norway rat)
C>Date: 28-Jun-1991 #sequence_revision 28-Jun-1991 #text_change 20-Jun-2000
C:Accession: A37786; S58467
R:Ogi, K.; Kimura, C.; Onda, H.; Arimura, A.; Fujino, M.
Biochem. Biophys. Res. Commun. 173, 1271-1279, 1990

A:Title: Molecular cloning and characterization of cDNA for the precursor of rat pituitary
A:Reference number: A37786; MUID:91097560; PMID:2268329
A:Accession: A37786
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-175 <OGI>
A:Cross-references: GB:M63006; NID:g205957; PIDN:AAA41791.1; PID:g205958
R:Hurley, J.D.; Gardiner, J.V.; Jones, P.M.; Bloom, S.R.
Endocrinology 136, 550-557, 1995

A:Title: Cloning and molecular characterization of complementary deoxyribonucleic acid
n the rat testis.
A:Reference number: S58467; MUID:95136947; PMID:7835287
A:Accession: S58467
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-6,'R',8-25,'L',27-175 <HUR>
A:Cross-references: EMBL:X80290; NID:g695710; PIDN:CAA56564.1; PID:g695711
A:Note: the authors translated the codon CTT for residue 26 as Pro
C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; duplication; hypothalamus; neuropeptide
F:131-168/Product: pituitary adenylate cyclase-activating polypeptide 38 #status experi-
F:131-157/Product: pituitary adenylate cyclase-activating polypeptide 27 #status experi-
F:157/Modified site: amidated carboxyl end (Leu) (amide in mature form from following g-
F:168/Modified site: amidated carboxyl end (Lys) (amide in mature form from following g-;

Query Match 42.7%; Score 85; DB 2; Length 175;
Best Local Similarity 56.2%; Pred. No. 0.0005;
Matches 18; Conservative 5; Mismatches 9; Indels 0; Gaps 0;

QY 2 ANAIFTSYRKVLGOLSARKLLQDMSRQOGE 33
Db 83 AHEILNEAYRKVLQDLSARKYLQSMVARGMGE 114

RESULT 8

A60038
N:Contains: intestinal peptide precursor - crab-eating macaque (fragment)
C:Species: Macaca fascicularis (crab-eating macaque)
C>Date: 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change 20-Mar-1998
C:Accession: A60038
R:Benson, D.L.; Isackson, P.J.; Jones, E.G.
Brain Res. Mol. Brain Res. 9, 169-174, 1991
A:Title: In situ hybridization reveals VIP precursor mRNA-containing neurons in monkey
A:Reference number: A60038; MUID:91203476; PMID:1850073
A:Accession: A60038
A>Status: not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 1-145 <BEN>
C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; duplication; hormone; intestine; neuropeptide; vasodi-

Query Match 40.2%; Score 80; DB 2; Length 145;
Best Local Similarity 36.8%; Pred. No. 0.0019;
Matches 14; Conservative 12; Mismatches 12; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGOLSARKLLQDMSRQOGERNQEN 38
Db 56 HADGVFTSDFSKLLGOLSARKYLESLMGKRVSSNISED 93

RESULT 9

VRHU

vasoactive intestinal peptide precursor [validated] - human
N:Alternate names: VIP precursor

N:Contains: peptide histidine-methionine (PHM-27); peptide histidine-valine (PHV-42); va-
C:Species: Homo sapiens (man)
C>Date: 14-Nov-1983 #sequence_revision 14-Nov-1983 #text_change 08-Dec-2000
C:Accession: A23296; A93113; A60205; A26361; A27419; JH0618; I51955; I56494; I56988; A01-
R:Tsukada, T.; Horovitch, S.J.; Montminy, M.R.; Mandel, G.; Goodman, R.H.
DNA 4, 293-300, 1985

A:Title: Structure of the human vasoactive intestinal polypeptide gene.
A:Reference number: A90952; MUID:86004065; PMID:3899557

A:Accession: A23296

A:Molecule type: DNA

A:Residues: 1-170 <TSU>

A:Cross-references: GB:M11553; NID:g340243; PIDN:AAA61284.1; PID:g340246

A:Note: the authors translated the codon GAA for residue 48 as Gln

R:Itoh, N.; Obata, K.; Yanaihara, N.; Okamoto, H.

Nature 304, 547-549, 1983

A:Title: Human preprovasoactive intestinal polypeptide contains a novel PHI-27-like pep-
A:Reference number: A93113; MUID:83271523; PMID:6571696

A;Accession: A93313
A;Molecule type: mRNA
A;Residues: 1-170 <ITO>
A;Cross-references: GB:J00157; GB:J00320; NID:G340277; PIDN:AAA61289.1; PID:G340280
R;Gozes, I.; Giladi, E.; Shani, Y.
J. Neurochem. 48, 1136-1141, 1987
A;Title: Vasoactive intestinal peptide gene: putative mechanism of information storage
A;Reference number: A60205; MUID:87140054; PMID:2434617
A;Accession: A60205
A;Molecule type: mRNA
A;Residues: 78-155 <GOZ>
A;Cross-references: GB:M31645; GB:M32162; NID:G340250; PIDN:AAA61285.1; PID:G553809
A;Note: this abundant mRNA from a human buccal tumor line contains an unspliced intron
R;Linder, S.; Barkhem, T.; Norberg, A.; Persson, H.; Schalling, M.; Hokfelt, T.; Magnusson
Proc. Natl. Acad. Sci. U.S.A. 84, 605-609, 1987
A;Title: Structure and expression of the gene encoding the vasoactive intestinal peptide
A;Reference number: A26361; MUID:87092456; PMID:3025882
A;Accession: A26361
A;Molecule type: DNA
A;Residues: 81-122 <VIA>
A;Cross-references: GB:M14623; NID:G340271; PIDN:AAA61288.1; PID:G340273
A;Note: the authors translated the codon TTA for residue 116 as Ser and GGC for residue
R;Yiangou, Y.; Di Marzo, V.; Spokes, R.A.; Panico, M.; Morris, H.R.; Bloom, S.R.
J. Biol. Chem. 262, 14010-14013, 1987
A;Title: Isolation, characterization, and pharmacological actions of peptide histidine
A;Reference number: A27419; MUID:88007645; PMID:3654650
A;Accession: A27419
A;Molecule type: protein
A;Residues: 81-122 <VIA>
R;Kitamura, K.; Kangawa, K.; Kawamoto, M.; Ichiki, Y.; Matsuo, H.; Eto, T.
Biochem. Biophys. Res. Commun. 185, 134-141, 1992
A;Title: Isolation and characterization of peptides which act on rat platelets, from a P
A;Reference number: JH0618; MUID:92287083; PMID:1318039
A;Accession: JH0618
A;Molecule type: protein
A;Residues: 125-152 <KIT>
A;Experimental source: Pheochromocytoma
R;Yamagami, T.; Ohsawa, K.; Nishizawa, M.; Inoue, C.; Gotoh, E.; Yanaihara, N.; Yamamoto
Ann. N. Y. Acad. Sci. 527, 87-102, 1988
A;Title: Complete nucleotide sequence of human vasoactive intestinal peptide/PHM-27 gene
A;Reference number: 151955; MUID:88267775; PMID:2839091
A;Accession: 151955
A;Status: translated from GB/EMBL/DBJ
A;Molecule type: DNA
A;Residues: 1-170 <RES>
A;Cross-references: GB:M33027; NID:G340253; PIDN:AAA69515.1; PID:G340254
R;Gozes, I.; Giladi, E.; Shani, Y.
J. Neurochem. 47, 1136-1141, 1987
A;Title: Vasoactive intestinal peptide gene: Putative mechanism of information storage
A;Reference number: 156494
A;Accession: 156494
A;Status: preliminary; translated from GB/EMBL/DBJ
A;Molecule type: DNA
A;Residues: 78-155 <RE2>
A;Cross-references: GB:M32162; NID:G340250; PIDN:AAA61285.1; PID:G553809
R;Bloom, S.R.; Christofides, N.D.; Delamarter, J.; Buell, G.; Kawashima, E.; Polak, J.M.
Lancet 2, 1163-1165, 1983
A;Title: Diarrhoea in vipoma patients associated with cosecretion of a second active pep
A;Reference number: 156988; MUID:84066682; PMID:6139527
A;Accession: 156988
A;Status: preliminary; translated from GB/EMBL/DBJ
A;Molecule type: mRNA
A;Residues: 50-170 <RE3>
A;Cross-references: GB:M54930; NID:G340247; PIDN:AAA63268.1; PID:G340248
C;Genetics:
A;Gene: GDB:VIP
A;Cross-references: GDB:120490; OMIM:192320
A;Map position: 6q26-6q27
A;Introns: 36/2; 77/2; 112/2; 156/2
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication; glycoprotein; hormone; intestine; neurop
F;1-20/Domain: signal sequence #status predicted <SIG>
F;81-122/Product: peptide histidine-valine (PHV-42) #status experimental <PHV>

F;81-107/Product: peptide histidine-methionine (PHM-27) #status experimental <PHM>
F;125-152/Product: vasoactive intestinal peptide #status experimental <VIP>
F;68,133/Binding site: carboxylate (Asn) (covalent) #status predicted
F;107/Modified site: amidated carboxyl end (Met) (amide in mature form from following gl
F;152/Modified site: amidated carboxyl end (Asn) (amide in mature form from following gl
Query Match 40.2%; Score 80; DB 1; Length 170;
Best Local Similarity 36.8%; Pred. No. 0.0023;
Matches 14; Conservative 12; Mismatches 12; Indels 0; Gaps 0;
QY 1 YANAIFNTSYRKVLGQLSARKLLQDIMSRQOQERNQEN 38
DB 81 HADGVFTSDFSKLLGQLSARKYLSLMLGKRVSSNISD 118
RESULT 10
VRGP vasoactive intestinal peptide precursor - guinea pig (fragments)
N;Contains: peptide histidine-isoleucine (PHI-27); vasoactive intestinal peptide (VIP)
C;Species: Cavia porcellus (guinea pig)
C;Date: 31-Mar-1988 #sequence revision 19-Apr-1996 #text_change 20-Mar-1998
C;Accession: A26175; S09688; A57082; B60304
R;Du, B.H.; Eng, J.; Hulmes, J.D.; Chang, M.; Pan, Y.C.E.; Yalow, R.S.
Biochem. Biophys. Res. Commun. 128, 1093-1098, 1985
A;Title: Guinea pig has a unique mammalian VIP.
A;Reference number: A26175; MUID:85225523; PMID:4004849
A;Accession: A26175
A;Molecule type: protein
A;Residues: 28-55 <DUB>
R;Buscail, L.; Cauvin, A.; Gourlet, P.; Gossen, D.; de Neef, P.; Rathe, J.; Robberecht,
Biochim. Biophys. Acta 1038, 355-359, 1990
A;Title: Purification and amino acid sequence of vasoactive intestinal peptide, peptide
A;Reference number: S09688; MUID:90254163; PMID:2340294
A;Accession: S09688
A;Molecule type: protein
A;Residues: 1-27 <BUS>
A;Accession: A57082
A;Molecule type: protein
A;Residues: 28-55 <BU2>
C;Superfamily: Glucagon
C;Keywords: amidated carboxyl end; duplication; hormone; intestine; neuropeptide; vasod
F;1-27/Product: peptide histidine-isoleucine #status experimental <P27>
F;28-55/Product: vasoactive intestinal peptide #status experimental <VIP>
F;27/Modified site: amidated carboxyl end (Ile) (in mature form) #status experimental
F;55/Modified site: amidated carboxyl end (Asn) (in mature form) #status experimental
Query Match 38.2%; Score 76; DB 1; Length 55;
Best Local Similarity 48.1%; Pred. No. 0.0024;
Matches 13; Conservative 9; Mismatches 5; Indels 0; Gaps 0;
QY 1 YANAIFNTSYRKVLGQLSARKLLQDIM 27
DB 1 HADGVFTSDFSKLLGQLSARKYLSL 27
RESULT 11
A34044
pituitary adenylate cyclase-activating polypeptide precursor - sheep
N;Contains: PACAP-27; PACAP-38
C;Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)
C;Date: 07-Jun-1990 #sequence revision 07-Jun-1990 #text_change 20-Jun-2000
C;Accession: A34044; I47059; A33432; A35414; A61063; B61063
R;Kimura, C.; Ohkubo, S.; Ogi, K.; Hosoya, M.; Itoh, Y.; Onda, H.; Miyata, A.; Jiang, L
Biochem. Biophys. Res. Commun. 166, 81-89, 1990
A;Title: A novel peptide which stimulates adenylate cyclase: molecular cloning and char
A;Reference number: A30160; MUID:90147744; PMID:2302217
A;Accession: A30160
A;Molecule type: mRNA
A;Residues: 1-176 <KIM>
A;Cross-references: GB:M32216; NID:G166029; PIDN:AAA31575.1; PID:G166030
R;Ohkubo, S.; Kimura, C.; Ogi, K.; Okazaki, K.; Hosoya, M.; Onda, H.; Miyata, A.; Arima
DNA Cell Biol. 11, 21-30, 1992
A;Title: Primary structure and characterization of the precursor to human pituitary ad

A;Reference number: I47059; MUID:92153305; PMID:I739432
A;Accession: I47059
A>Status: preliminary; translated from GB/EMBL/DDBJ
A:Molecule type: mRNA
A;Residues: 1-176 <OHK>
A;Cross-references: GB:S83511; NID:g245803; PIDN:AAB21469.1; PID:g245804
R;Miyata, A.; Arimura, A.; Dahl, R.D.; Kitada, C.; Kubo, K.; Fujino, M.; Minamino, N.; Ari
Biochem. Biophys. Res. Commun. 164, 567-574, 1989
A;Title: Isolation of a novel 38 residue-hypothalamic polypeptide which stimulates adenylate cyclase activity in pituitary cells.
A;Reference number: A33432; MUID:90026436; PMID:2803320
A;Accession: A33432
A:Molecule type: protein
A;Residues: 132-169 <MIYI>
R;Miyata, A.; Jiang, L.; Dahl, R.D.; Kitada, C.; Kubo, K.; Fujino, M.; Minamino, N.; Ari
Biochem. Biophys. Res. Commun. 170, 643-648, 1990
A;Title: Isolation of a neuropeptide corresponding to the N-terminal 27 residues of the
A;Reference number: A35414; MUID:90343780; PMID:2383262
A;Accession: A35414
A:Molecule type: protein
A;Residues: 132-158 <MIY2>
R;Miyata, A.; Jiang, L.; Stibbs, H.H.; Arimura, A.
Regul. Pept. 38, 145-154, 1992
A;Title: Chemical characterization of vasoactive intestinal polypeptide-like immunoreactant in rat brain.
A;Reference number: A61063; MUID:92245116; PMID:1574609
A;Accession: A61063
A:Contents: annotation
C;Comment: This peptide stimulates adenylylate cyclase activity in pituitary cells.
C;Superfamily: glucagon
F;Keywords: amidated carboxyl end; duplication; hypothalamus; neuropeptide
F;1-24/Domain: signal sequence #status predicted <SIG>
F;25-176/Product: pituitary adenylylate cyclase-activating propolypeptide #status predicted
F;132-169/Product: pituitary adenylylate cyclase-activating polypeptide 38 #status experim
F;132-158/Product: pituitary adenylylate cyclase-activating polypeptide 27 #status experim
F;158/Modified site: amidated carboxyl end (Leu) (amide in mature form from following gl
F;169/Modified site: amidated carboxyl end (Lys) (amide in mature form from following gl

Query Match 38.2%; Score 76; DB 2; Length 176;
Best Local Similarity 51.6%; Pred. No. 0.0083;
Matches 16; Conservative 6; Mismatches 9; Indels 0; Gaps 0;

Qy 2 ANAIITNSRYKVGLQSARKLLIQDIMSROQG 32
| : ||||| | : : :
Db 84 AHGILDKAYRKVLQLSARRYLQTLMAGLG 114

RESULT 12
VRRT
vasoactive intestinal peptide precursor - rat
N;Contains: peptide histidine-isoleucine (PHI-27); vasoactive intestinal peptide (VIP)
C;Species: Rattus norvegicus (Norway rat)
C;Date: 28-Feb-1986 #sequence revision 30-Jun-1993 #text change 18-Jun-1999
C;Accession: A60053; B60037; A01548; A28102; A60586; A60587; S09691
R;Giladi, E.; Shani, Y.; Gozes, I.
Brain Res. Mol. Brain Res. 7, 261-267, 1990
A;Title: The complete structure of the rat VIP gene.
A;Reference number: A60053; MUID:90244869; PMID:2159586
A;Accession: A60053
A:Molecule type: DNA
A;Residues: 1-170 <GIU>
A;Note: the authors translated the codon GAG for residue 67 as Glu
R;Jampertti, E.D.; Rosen, K.M.; Villa-Komaroff, L.
Brain Res. Mol. Brain Res. 9, 217-231, 1991
A;Title: Characterization of the gene and messages for vasoactive intestinal polypeptide
A;Reference number: A60037; MUID:91232388; PMID:1851524
A;Accession: B60037
A>Status: not compared with conceptual translation
A:Molecule type: cDNA
A;Residues: 78-155 <IAM>
R;Nishizawa, M.; Hayakawa, Y.; Yanaiharu, N.; Okamoto, H.
FEBS Lett. 183, 55-59, 1985
A;Title: Nucleotide sequence divergence and functional constraint in VIP precursor mRNA
A;Reference number: A01548; MUID:85154612; PMID:3838518
A;Accession: A01548
A:Molecule type: mRNA

Mon Jul 19 13:55:15 2004

A;Status: preliminary; translated from GB/EMBL/DBJ
A;Molecule type: DNA
A;Residues: 1-35 <RES>
A;Cross-references: EMBL:X74297; NID:g959871; PIDN:CAA52350.1; PID:g959872
C;Comment: Two active peptides are released from the VIP precursor by cleavage at paired
C;Genetics:
C;Gene: VIP
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; cerebral cortex; duplication; glycoprotein; hormone;
F;1-21/Domain: signal sequence #status predicted <SIG>
F;81-107/Product: PHI-27 #status predicted <PHI>
F;125-152/Product: vasoactive intestinal peptide #status predicted <VIP>
F;107/Modified site: amidated carboxyl end (ile) (amide in mature form following g1
F;133/Binding site: carboxylate (Asn) (covalent) #status predicted
F;132/Modified site: amidated carboxyl end (Asn) (amide in mature form following g1
Query Match 37.2%; Score 74; DB 2; Length 170;
Best Local Similarity 36.7%; Pred. No. 0.015;
Matches 11; Conservative 6; Indels 0; Gaps 0;
Qy 1 YANAFTNSYRKVLGQLSARKLLQDIMSRQ 30
Db 81 HADGVFTSDYSRLGQLSARKKYLESLICKR 110

RESULT 14

VRBO

vasoactive intestinal peptide precursor - bovine (fragments)

N:Contains: peptide histidine-isoleucine (PHI-27); vasoactive intestinal peptide (VIP)

C:Species: Bos primigenius taurus (cattle)

C:Date: 26-Apr-1996 #sequence revision 03-May-1996 #text_change 07-May-1999

C:Accession: A61643; A61644; S09683

R:Carlquist, M.; Kaiser, R.; Tatemoto, K.; Joernvall, H.; Mutt, V.

Eur. J. Biochem. 144, 243-247, 1984

A:Title: A novel form of the polypeptide PHI isolated in high yield from bovine upper in

A:Reference number: A61643; MUID:85027215; PMID:6548446

A:Accession: A61643

A:Molecule type: protein

A:Residues: 1-27 <CAR>

R:Carlquist, M.; Mutt, V.; Joernvall, H.

FEBS Lett. 108, 457-460, 1979

A:Title: Isolation and characterization of bovine vasoactive intestinal peptide (VIP).

A:Reference number: A61644; MUID:80092152; PMID:520589
A:Accession: A61644
A:Molecule type: protein
A:Residues: 28-55 <CA3>
R:Buccalil, L.; Cauvin, A.; Gourlet, P.; Gossen, D.; de Neef, P.; Rathe, J.; Robberecht, R.
Biochim. Biophys. Acta 1038, 355-359, 1990
A:Title: Purification and amino acid sequence of vasoactive intestinal peptide, peptide
A:Reference number: S09688; MUID:90254163; PMID:2340294
A:Contents: annotation; comparison of mammalian PHI sequences
C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; duplication; hormone; intestine; neuropeptide; vasod
F:1-27/Product: peptide histidine-isoleucine #status experimental <2P7>
F:28-55/Product: vasoactive intestinal peptide #status experimental <VP>
F:27/Modified site: amidated carboxyl end (ile) (in mature form) #status experimental
F:55/Modified site: amidated carboxyl end (Asn) (in mature form) #status experimental

Query Match	36.7%	Score 73	DB 1	Length 55
Best Local Similarity	44.4%	Pred. No. 0.0061		
Mech. 12	Conservative	10	Mismatches	5
			Indels	0
			Gaps	0

```

QY      1  YANAIFNFSYRKVLGQLSARKLLQDIM 27
      ||: ||: | ::||| |||: | : ::
Db      1  HADGVFTSDYSRLLGQLSARKVLESLL 27

```

RESULT 15

VRSH

vasoactive intestinal peptide precursor - sheep (fragments)

N;Contains: peptide histidine-isoleucine (PHI-27); vasoactive intestinal peptide (VIP)

C;Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)

C;Species: war_1993 #sequence revision 19-Apr-1996 #text change 20-Mar-1998

C:Accession: B60072; A60072; C61063; A4397
R:Bounjoua, Y.; Vandermeers, A.; Robberecht, P.; Vandermeers-Piret, M.C.; Christophe, J.
Regul. Pept. 32, 169-179, 1991
A:Title: Purification and amino acid sequence of vasoactive intestinal peptide, peptide
A:Reference number: A60072; MUID:91239834; PMID:2034821
A:Accession: B60072
A:Molecule type: protein
A:Residues: 1-27 <BOU>
A:Accession: A60072
A:Molecule type: protein
A:Residues: 28-55 <BO2>
R:Miyata, A.; Jiang, L.; Stibbs, H.H.; Arimura, A.
Regul. Pept. 38, 145-154, 1992
A:Title: Chemical characterization of vasoactive intestinal polypeptide-like immunoreact
A:Reference number: A61063; MUID:92245116; PMID:1574609
A:Accession: C61063
A:Molecule type: protein
A:Residues: 28-55 <MIY>
A:Experimental source: hypothalamus, intestine
R:Gafvelin, G.
Peptides 11, 703-706, 1990
A:Title: Isolation and primary structure of VIP from sheep brain.
A:Reference number: A43974; MUID:91045331; PMID:2235680
A:Accession: A43974
A:Molecule type: protein
A:Residues: 28-55 <GAF>
A:Experimental source: brain
C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; brain; duplication; hormone; intestine; neuropeptide
F:1-27/Product: peptide histidine-isoleucine #status experimental <PHI>
F:28-55/Product: vasoactive intestinal peptide #status experimental <VIP>
F:27/Modified site: amidated carboxyl end (ile) (in mature form) #status experimental
F:55/Modified site: amidated carboxyl end (asn) (in mature form) #status experimental

Query Match 36.7%; Score 73; DB 1; Length 55;
Best Local Similarity 44.4; Pred. No. 0.0061;
Matches 12; Conservative 10; Mismatches 5; Indels 0; Gaps 0;

QY 1 YANAIFTNYSRKVLGGQLSARKLLQDIM 27
| : | : | : | : | : | : | : | : | : | : |
DB 1 HDGVFTSDYSRLLGQLSAKKYLESLI 27

Search completed: July 12, 2004, 20:53:06
Job time : 14 secs

GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: July 12, 2004, 20:42:46 ; Search time 10 Seconds
(without alignments)
208.281 Million cell updates/sec

Title: US-10-021-403a-1

Perfect score: 199

Sequence: 1 YANAIFTSYRKVLGQLSARKLLQDIMSRQOGERNQENGA 40

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 141681 seqs, 52070155 residues

Total number of hits satisfying chosen parameters: 141681

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : SwissProt_42:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query %	Match	Length	DB	ID	Description
1	188	94.5	44	1	SLIB_PIG		P01287 sus scrofa
2	185	93.0	106	1	SLIB_BOVIN		P01288 bos taurus
3	184	92.5	44	1	SLIB_SHEEP		P07217 ovis aries
4	182	91.5	108	1	SLIB_HUMAN		P01286 homo sapien
5	179	89.9	107	1	SLIB_MESAU		Q60549 mesocricetu
6	146	73.4	104	1	SLIB_RAT		P09916 rattus norv
7	111.5	56.0	103	1	SLIB_MOUSE		P16043 mus musculu
8	87	43.7	173	1	PACA_ONCNE		P41585 oncorhynch
9	87	43.7	175	1	PACA_CHICK		P41534 g glucagon-
10	86	43.2	45	1	SLIB_CYPCA		P42692 cyprinus ca
11	86	43.2	175	1	PACA_MOUSE		O70176 m pituitary
12	85	42.7	175	1	PACA_RAT		P13589 r pituitary
13	80	40.2	170	1	VIP_HUMAN		P01282 homo sapien
14	76	38.2	172	1	VIP_CAVPO		P04566 cavia porce
15	76	38.2	176	1	PACA_SHEEP		P16613 o pituitary
16	74	37.2	170	1	VIP_MOUSE		P32648 mus musculu
17	74	37.2	170	1	VIP_RAT		P01283 rattus norv
18	74	37.2	171	1	PACA_RANRI		Q09169 r glucagon-
19	73	36.7	72	1	VIP_BOVIN		P81401 bos taurus
20	71	35.7	176	1	PACA_HUMAN		P18509 h pituitary
21	69	34.7	72	1	VIP_PIG		P01284 sus scrofa
22	69	34.7	72	1	VIP_RABIT		P32649 oryctolagus
23	65	32.7	28	1	VIP_DIDMA		P39089 didelphis m
24	62.5	31.4	200	1	VIP_CHICK		P48143 gallus gall
25	62.5	31.4	200	1	VIP_MELGA		P45644 meleagris g
26	61	30.7	195	1	PACA_CLAMA		P48144 clarias mac
27	59	29.6	206	1	GLUC_CHICK		P01277 gallus gall
28	59	29.6	266	1	GLUI_XENLA		O42143 xenopus lae
29	58	29.1	35	1	EXE2_HELSE		P04204 heloderma s
30	58	29.1	73	1	PACA_PIG		P04203 heloderma s
31	57	28.6	525	1	MEPE_HUMAN		Q9ng76 homo sapien
32	57	28.1	38	1	EXE1_HELSE		P04203 heloderma s
33	56	28.1	38	1	PACA_UAJA		P81039 uranoscopus

34	54	27.1	27	1	SECR_CHICK	P01280 gallus gall
35	54	27.1	28	1	VIP_SHEEP	P04565 ovis aries
36	53	26.6	204	1	GLUC_HELSE	O12956 heloderma s
37	52.5	26.4	249	1	143D_TOBAC	O49996 nicotiana t
38	52	26.1	28	1	VIP_SCYCA	P09685 scyllorhinu
39	51	25.6	28	1	VIP_ALLMI	P48142 alligator m
40	51	25.6	28	1	VIP_RANRI	P81016 rana ridibu
41	51	25.6	181	1	YNV2_CAEEL	P34565 caenorhabdi
42	50.5	25.4	249	1	1431_LYCES	P93206 lycopersico
43	50	25.1	520	1	HMCS_HUMAN	Q01581 homo sapien
44	50	25.1	523	1	YAZ4_SCHPO	Q10225 schizosacch
45	50	25.1	854	1	TRIC_SULTO	Q97295 sulfolobus

ALIGNMENTS

RESULT 1						
SLIB_PIG						
ID	SLIB_PIG	STANDARD;	PRT;	44	AA.	
AC	P01287;					
DT	21-JUL-1986 (Rel. 01, Created)					
DT	21-JUL-1986 (Rel. 01, Last sequence update)					
DT	15-MAR-2004 (Rel. 43, Last annotation update)					
DE	Somatoliberin (Growth hormone-releasing factor) (GRF) (Growth hormone-releasing hormone) (GHRH).					
DE	hormone-releasing hormone) (GHRH).					
GN	GHRH.					
OS	Sus scrofa (Pig).					
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;					
OC	Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.					
OX	NCBI_TaxID=9823;					
RN	[1]					
RP	SEQUENCE.					
RC	TISSUE-Hypothalamus;					
RX	MEDLINE=84079886; PubMed=6418166;					
RA	Boehlen P., Esch P., Brazeau P., Ling N., Guillemin R.;					
RT	"Isolation and characterization of the porcine hypothalamic growth hormone releasing factor.";					
RL	Biochem. Biophys. Res. Commun. 116:726-734(1983).					
CC	!- FUNCTION: GRF is released by the hypothalamus and acts on the					
CC	adenohypophyse to stimulate the secretion of growth hormone.					
CC	!- SUBCELLULAR LOCATION: Secreted.					
CC	!- MISCELLANEOUS: The carboxyl-amidated somatoliberin is twice as					
CC	active as that having a free carboxyl end.					
CC	!- SIMILARITY: Belongs to the glucagon family.					
DR	PIR; A01553; RHPG.					
DR	InterPro; IPR000532; Glucagon.					
DR	Pfam; PF00123; hormone2; 1.					
DR	SMART; SM00070; GLUCA; 1.					
DR	PROSITE; PS00260; GLUCAGON; 1.					
FW	Glucagon family; Amidation; Hypothalamus.					
FT	MOD RES 44					
SQ	SEQUENCE 44 AA; 5110 MW; 1271DC7059F4802E CRC64;					

Query Match 94.5%; Score 188; DB 1; Length 44;
Best Local Similarity 95.0%; Pred. No. 2.7e-19;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy	1	YANAIFTSYRKVLGQLSARKLLQDIMSRQOGERNQENGA 40
Db	1	YADAIFTSYRKVLGQLSARKLLQDIMSRQOGERNQENGA 40

RESULT 2						
SLIB_BOVIN						
ID	SLIB_BOVIN	STANDARD;	PRT;	106	AA.	
AC	P01288; Q9MZD4;					
DT	21-JUL-1986 (Rel. 01, Created)					
DT	16-OCT-2001 (Rel. 40, Last sequence update)					
DT	15-MAR-2004 (Rel. 43, Last annotation update)					
DE	Somatoliberin precursor (growth hormone-releasing factor) (GRF)					
DE	(Growth hormone-releasing hormone) (GHRH).					
GN	GHRH.					

[illegible]

RA Coulson A., Coville G.J., Deadman R., Dhami P.D., Dunn M.,
 RA Ellington A.G., Frankland J.A., Fraser A., French L., Garner P.,
 RA Grafham D.V., Griffiths C., Griffiths M.N.D., Gwilliam R., Hall R.E.,
 RA Hammond S., Harley J.L., Heath P.D., Ho S., Holden J.L., Howden P.J.,
 RA Huckle E., Hunt A.R., Hunt S.B., Jekosch K., Johnson C.M., Johnson D.,
 RA Kay M.P., Kimberley A.M., King A., Knights A., Laird G.K., Lawlor S.,
 RA Leivaeslailho M.H., Leversha M.A., Lloyd C., Lloyd D.M., Lovell J.D.,
 RA Marsh V.L., Martin S.L., McConachie L.J., McIlroy D.M., Lovell J.D.,
 RA Milne S.A., Mistry D., Moore M.J.F., Mullikin J.C., Nickerson T.,
 RA Oliver K., Parker A., Patel R., Pearce T.A.V., Peck A.I.,
 RA Phillimore B.J.C.T., Prathalingam S.R., Plumb R.W., Ramsay H.,
 RA Rice C.M., Ross M.T., Scott C.E., Sehra H.K., Shownkeen R., Sims S.,
 RA Suze C.D., Smith M.L., Soderlund C., Steward C.A., Sulten J.E.,
 RA Swann R.M., Sycamore N., Taylor R., Tee L., Thomas D.W., Thorpe A.,
 RA Tracey A., Tromans A.C., Vaudin M., Wall M., Wallis J.M.,
 RA Whitehead S.L., Whittaker P., Willey D.L., Williams L., Williams S.A.,
 RA Wilming L., Wray P.W., Hubbard T., Durbin R.M., Bentley D.R., Beck S.,
 RA Rogers J.;
 RT "The DNA sequence and comparative analysis of human chromosome 20.";
 RL Nature 414:865-871(2001).
 RN [4]
 RP SEQUENCE OF 6-101 FROM N.A.
 RX MEDLINE=84039819; PubMed=6415488;
 RA Mayo K.E., Vale W., Rivier J., Rosenfeld M.G., Evans R.M.;
 RT "Expression-cloning and sequence of a cDNA encoding human growth
 RT hormone-releasing factor.";
 RL Nature 306:86-88(1983).
 RN [5]
 RP SEQUENCE OF 32-75.
 RX MEDLINE=83016666; PubMed=6812220;
 RA Guillemin R., Brazeau P., Boehlen P., Esch F., Ling N.,
 RA Wehrenberg W.B.;
 RT "Growth hormone-releasing factor from a human pancreatic tumor that
 RT caused acromegaly.";
 RL Science 218:585-587(1982).
 RN [6]
 RP STRUCTURE BY NMR OF 32-60.
 RX MEDLINE=89220972; PubMed=2854259;
 RA Bruenger A.T., Clore G.M., Gronenborn A.M., Karplus M.;
 RT "Solution conformations of human growth hormone releasing factor:
 RT comparison of the restrained molecular dynamics and distance geometry
 RT methods for a system without long-range distance data.";
 RL Protein Eng. 1:399-406(1987).
 RN [7]
 RP STRUCTURE BY NMR OF 32-60.
 RX MEDLINE=87141181; PubMed=3029387;
 RA Clore G.M., Martin S.R., Gronenborn A.M.;
 RT "Solution structure of human growth hormone releasing factor.
 RT Combined use of circular dichroism and nuclear magnetic resonance
 RT spectroscopy.";
 RL J. Mol. Biol. 191:553-561(1986).
 CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the
 CC adenylophypophyse to stimulate the secretion of growth hormone.
 CC -!- SUBCELLULAR LOCATION: Secreted.
 CC -!- PHARMACEUTICAL: Available under the names Geref (Serono). Geref is
 CC a synthetic acetylated form of residues 1 to 29 of GHRH. Used
 CC for the treatment of growth hormone deficiency.
 CC -!- SIMILARITY: Belongs to the glucagon family.
 CC
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 CC or send an email to license@isb-sib.ch).
 CC -----
 CC EMBL; L29177; -; NOT ANNOTATED CDS.
 CC EMBL; L00137; AAA52608.1; -;
 CC EMBL; L00134; AAA52609.1; JOINED.
 CC EMBL; L00135; AAA52608.1; JOINED.
 CC EMBL; L00136; AAA52608.1; JOINED.
 CC EMBL; L00137; AAA52609.1; -;

DR EMBL; L00134; AAA52609.1; JOINED.
 DR EMBL; L00135; AAA52609.1; JOINED.
 DR EMBL; L00136; AAA52609.1; JOINED.
 DR EMBL; AL031659; CAB41762.1; -;
 DR EMBL; X00094; CAA24955.1; -;
 DR EMBL; X00094; CAA24955.1; -;
 DR PIR; A21902; RHHUS.
 DR Genew; HGNC:4265; GHRH.
 DR MIM; 139190; -;
 DR GO; GO:0005102; F:receptor binding; TAS.
 DR GO; GO:0007267; P:cell-cell signaling; TAS.
 DR GO; GO:0007165; P:signal transduction; TAS.
 DR InterPro; IPR000532; Glucagon.
 DR Pfam; PF00123; hormone2; 1.
 DR SMART; SM00070; GLUCA; 1.
 DR PROSITE; PS00260; GLUCAGON; 1.
 KW Glucagon family; Signal; Amidation; Hypothalamus.
 FT SIGNAL 1 20
 FT PEPTIDE 32 75 SOMATOLIBERIN
 FT MOD RES 75 75 AMIDATION (G-76 PROVIDE AMIDE GROUP).
 FT VARIANT 103 103 Missing (in a second precursor).
 FT /FTID=VAR 003186.
 FT CONFLICT 92 92 E -> D (IN REF. 4).
 SQ SEQUENCE 108 AA; 12447 MW; 366AE05383488C53 CRC64;
 Query Match 91.5%; Score 182; DB 1; Length 108;
 Best Local Similarity 92.5%; Pred. No. 4.6e-18;
 Matches 37; Conservative 1; Mismatches 2; Indels 0; Gaps 0;
 QY 1 YANAIFTSYRKVLGQSLKLLQDIMSQQGGERNOENGA 40
 DB 32 YADAIFTSYRKVLGQSLKLLQDIMSQQGGERNOENGA 71
 RESULT 5
 SLIB_MESAU STANDARD; PRT; 107 AA.
 ID SLIB_MESAU STANDARD; PRT; 107 AA.
 AC Q60549;
 DT 15-JUL-1998 (Rel. 36, Created)
 DT 15-JUL-1998 (Rel. 36, Last sequence update)
 DT 15-MAR-2004 (Rel. 43, Last annotation update)
 DE Somatoliberin precursor (Growth hormone-releasing factor) (GRF)
 DE (Growth hormone-releasing hormone) (GHRH).
 GN GHRH OR GRF.
 OS Mesocricetus auratus (Golden hamster).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
 OC Mesocricetus.
 OX NCBI_TaxID=10036;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE=Hypothalamus;
 RX MEDLINE=95218216; PubMed=7703510;
 RA Ono M., Miki N., Demura H., Tadokoro K., Nagafuchi S., Yamada M.;
 RT "Molecular cloning of cDNA encoding the precursor for hamster
 RT hypothalamic growth hormone-releasing factor.";
 RL DNA Seq. 5:93-102(1994).
 CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the
 CC adenylophypophyse to stimulate the secretion of growth hormone.
 CC -!- SUBCELLULAR LOCATION: Secreted.
 CC -!- SIMILARITY: Belongs to the glucagon family.
 CC
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 CC -----
 CC EMBL; D23671; BAA04901.1; -;
 CC InterPro; IPR000532; Glucagon.
 CC Pfam; PF00123; hormone2; 1.

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CC DR SMART; SM00070; GLUCA; 1.
CC DR PROSITE; PS00260; GLUCAGON; 1.
CC KW Glucagon family; Signal; Amidation; Hypothalamus.

CC DR EMBL; X02319; -; NOT_ANNOTATED_CDS.
CC DR EMBL; X02335; CAA26194.1; -.

CC DR EMBL; X02335; CAA26194.1; -.

CC DR EMBL; X02320; CAA26194.1; JOINED.
CC DR EMBL; X02321; CAA26194.1; JOINED.

CC DR EMBL; X02321; CAA26194.1; JOINED.

CC DR EMBL; X02322; CAA26194.1; JOINED.
CC DR EMBL; W73486; AAA41220.1; -.

CC DR EMBL; W73486; AAA41220.1; -.

CC DR EMBL; U10156; AAC52184.1; -.

CC DR EMBL; U10156; AAC52184.1; -.

CC DR PIR; A32731; A32731.
CC DR InterPro; IPR000532; Glucagon.

CC DR PIR; A32731; A32731.
CC DR InterPro; IPR000532; Glucagon.

CC DR Pfam; PF00123; hormone2; 1.
CC DR SMART; SM00070; GLUCA; 1.

CC DR Pfam; PF00123; hormone2; 1.
CC DR SMART; SM00070; GLUCA; 1.

CC DR PROSITE; PS00260; GLUCAGON; 1.
CC KW Glucagon family; Signal; Hypothalamus.

CC DR PROSITE; PS00260; GLUCAGON; 1.
CC KW Glucagon family; Signal; Hypothalamus.

CC FT SIGNAL 1 19
CC FT PEPTIDE 31 73

CC FT SIGNAL 1 19
CC FT PEPTIDE 31 73

CC FT PEPTIDE 31 73
CC SQ SEQUENCE 104 AA; 12266 MW; F9C17485742B2887 CRC64;

CC FT PEPTIDE 31 73
CC SQ SEQUENCE 107 AA; 12298 MW; 3DEPA8D4B3F37636 CRC64;

CC SQ SEQUENCE 104 AA; 12266 MW; F9C17485742B2887 CRC64;

CC SQ SEQUENCE 107 AA; 12298 MW; 3DEPA8D4B3F37636 CRC64;

Query Match 73.4%; Score 146; DB 1; Length 104;
Best Local Similarity 75.7%; Pred. No. 4e-13;

Query Match 89.9%; Score 179; DB 1; Length 107;
Best Local Similarity 92.3%; Pred. No. 1.2e-17;

Matches 28; Conservative 7; Mismatches 2; Indels 0; Gaps 0;

Matches 36; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGSLQSLKLLQDIMSROQGERNQ 37

QY 1 YANAIFTSYRKVLGSLQSLKLLQDIMSROQGERNQ 39

DB 31 HADAIFTSYRKVLGSLQSLKLLQDIMSROQGERNQ 67

DB 31 YADAIFTSYRKVLGSLQSLKLLQDIMSROQGERNQ 69

RESULT 7

RESULT 6

SLIB SLIB RAT STANDARD; PRT; 104 AA.

SLIB RAT STANDARD; PRT; 104 AA.

AC P099T6; (Rel. 10, Created)

AC P099T6; (Rel. 10, Created)

DT 01-FEB-1991 (Rel. 17, Last sequence update)

DT 01-MAX-1989 (Rel. 10, Created)

DT 15-MAR-2004 (Rel. 43, Last annotation update)

DT 01-FEB-1991 (Rel. 17, Last sequence update)

DE Somatoliberin precursor (Growth hormone-releasing factor) (GRF)

DT 15-MAR-2004 (Rel. 43, Last annotation update)

DE (Growth hormone-releasing hormone) (GHRH)

DE Somatoliberin precursor (Growth hormone-releasing factor) (GRF)

GN GHRH.

DE (Growth hormone-releasing hormone) (GHRH)

OS Rattus norvegicus (Rat).

GN GHRH.

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OS Rattus norvegicus (Rat).

OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OX NCBI_TaxID=10116;

OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.

RN [1]

OX NCBI_TaxID=10116;

RP SEQUENCE FROM N.A.

RN [1]

RX MEDLINE=85163768; PubMed=3920534;

RP SEQUENCE FROM N.A.

RA Mayo K.E., Cerelli G.M., Rosenfeld M.G., Evans R.M.;

RX MEDLINE=85163768; PubMed=3920534;

RT "Expression of the rat growth hormone-releasing hormone gene in

RA Mayo K.E., Cerelli G.M., Rosenfeld M.G., Evans R.M.;

RL placenta is directed by an alternative promoter.";

RT "Expression of the rat growth hormone-releasing hormone gene in

Proc. Natl. Acad. Sci. U.S.A. 88:8749-8753(1991).

RL placenta is directed by an alternative promoter.";

RN [3]

Proc. Natl. Acad. Sci. U.S.A. 88:8749-8753(1991).

RP SEQUENCE FROM N.A.

RN [3]

RC STRAIN=Sprague-Dawley; TISSUE=Testis;

RP SEQUENCE FROM N.A.

RX MEDLINE=95203210; PubMed=7895659;

RC STRAIN=Sprague-Dawley; TISSUE=Testis;

RA Srivastava C.H., Monts B.S., Rothrock J.K., Peredo M.J.,

RX MEDLINE=95203210; PubMed=7895659;

RT "Presence of a spermatogenic-specific promoter in the rat growth

RA Srivastava C.H., Monts B.S., Rothrock J.K., Peredo M.J.,

RL hormone-releasing hormone gene.";

RT "Presence of a spermatogenic-specific promoter in the rat growth

Endocrinology 136:1502-1508(1995).

RL hormone-releasing hormone gene.";

RN [4]

Endocrinology 136:1502-1508(1995).

RP SEQUENCE OF 31-73.

RN [4]

RC TISSUE=Hypothalamus;

RP SEQUENCE OF 31-73.

EX MEDLINE=83219259; PubMed=6406907;

RC TISSUE=Hypothalamus;

RA Spices J., Rivier J., Vale W.;

EX MEDLINE=83219259; PubMed=6406907;

RT "Characterization of rat hypothalamic growth hormone-releasing

RA Spices J., Rivier J., Vale W.;

RL factor.";

RT "Characterization of rat hypothalamic growth hormone-releasing

RN [4]

RL factor.";

RP SEQUENCE 303:532-535(1993).

RN [4]

RC -!- FUNCTION: GRF is released by the hypothalamus and acts on the

RP SEQUENCE 303:532-535(1993).

CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the

RC -!- FUNCTION: GRF is released by the hypothalamus and acts on the

CC adenyphophyse to stimulate the secretion of growth hormone.

CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the

CC -!- SIMILARITY: Belongs to the glucagon family.

CC adenyphophyse to stimulate the secretion of growth hormone.

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CC -!- SIMILARITY: Belongs to the glucagon family.

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CC EMBL; M31654; AAA37691.1; -.

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CC EMBL; M31658; AAA37739.1; -.

CC EMBL; M31654; AAA37691.1; -.

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DR PIR; A41410; A41410.
DR MGD; MGI:95709; Ghrrh.
DR InterPro: IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 1.
DR SMART; SM00070; GLUCA; 1.
DR PROSITE; PS00260; GLUCAGON; 1.
KW Glucagon family; Signal, Hypothalamus.
FT SIGNAL 1 19
FT PEPTIDE 31 72 SOMATOLIBERIN.
FT SEQUENCE 103 AA; 12064 MW; F3BAG870BF2CA8DC CRC64;
Query Match 55.0%; Score 111.5; DB 1; Length 103;
Best Local Similarity 60.0%; Pred. No. 2.2e-08;
Matches 24; Conservative 8; Mismatches 7; Indels 1; Gaps 1;
QY 1 YANAIFNYSRVKVLGQLSARKLLQDIMSROQNGA 40
: : : : : : : : : : : : : : : : : : : : : : : : : :
Db 31 HVDAIFITNRYKLLSQLYARKVIQDIMNK-QGERIQEORA 69
: : : : : : : : : : : : : : : : : : : : : : : : : :

RESULT 8
PACA_ONCNE STANDARD; PRT; 173 AA.
AC P41585;
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Glucagon-family neuropeptides precursor [Contains: Growth hormone-
DE releasing factor (GRF) (Growth hormone-releasing hormone) (GHRH) ;
DE Pituitary adenylate cyclase activating polypeptide (PACAP)].
OS Oncorhynchus nerka (Sockeye salmon).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Euteleostei;
OC Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
OX NCBI_TaxID=8023;
RN [1]
RP SEQUENCE FROM N.A., AND ALTERNATIVE SPLICING.
RC TISSUE=Brain;
RX MEDLINE=93345532; PubMed=8344311;
RA Parker D.B., Coe I.R., Dixon G.H., Sherwood N.M.;
RT "Two salmon neuropeptides encoded by one brain cDNA are structurally
RT related to members of the glucagon superfamily.";
RL Eur. J. Biochem. 215:439-448(1993).
CC -!- FUNCTION: Primary role of GHRH is to release GH from the
CC pituitary.
CC -!- FUNCTION: PACAP plays pivotal roles as a neurotransmitter and/or a
CC neuromodulator.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- ALTERNATIVE PRODUCTS:
CC Event=Alternative splicing; Named isoforms=2;
CC Name=Long;
CC IsoId=P41585-1; Sequence=Displayed;
CC Name=Short;
CC IsoId=P41585-2; Sequence=VSP_001762, VSP_001763;
CC Note=Lacks the GHRH-like sequence;
CC -!- POLYMORPHISM: Four clones were identified that had nucleotide
CC differences.
CC -!- SIMILARITY: Belongs to the glucagon family.

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-----
EMBL; X73233; CRA51705.1; ALT_SEQ.
DR PIR; S34767; S34767.
DR InterPro: IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 2.
DR PRINTS; PR00275; GLUCA; 2.
DR SMART; SM00070; GLUCA; 2.

```

```

DR PROSITE; PS00260; GLUCAGON; 2
KW Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW Amidation; Alternative splicing; Polymorphism.
FT SIGNAL 1 22
FT PROPEP 23 80
FT PEPTIDE 82 126
FT PEPTIDE 129 166
FT MOD_RES 166 166
FT VARSPLIC 78 78
FT VARSPLIC 79 113
FT VARIANT 22 22
FT VARIANT 61 61
FT VARIANT 78 78
FT VARIANT 122 122
FT VARIANT 165 165
FT VARIANT 171 171
FT SEQUENCE 173 AA; 19704 MW; 2B05554F43C738F2 CRC64;
Query Match 43.7%; Score 87; DB 1; Length 173;
Best Local Similarity 50.0%; Pred. No. 8.8e-05;
Matches 16; Conservative 8; Mismatches 8; Indels 0; Gaps 0;
QY 1 YANAIFNYSRVKVLGQLSARKLLQDIMSROQG 32
: : : : : : : : : : : : : : : : : : : : : : : : : :
Db 82 HADGMEKAYRKALGQLSARKYLHSLMAKRVG 113
: : : : : : : : : : : : : : : : : : : : : : : : : :

RESULT 9
PACA_CHICK STANDARD; PRT; 175 AA.
ID _PACA_CHICK
AC P41534;
DT 01-NOV-1995 (Rel. 32, Created)
DT 15-JUL-1998 (Rel. 36, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Glucagon-family neuropeptides precursor [Contains: Growth hormone-
DE releasing factor (GRF) (Growth hormone-releasing hormone) (GHRH) ;
DE Pituitary adenylate cyclase activating polypeptide-27 (PACAP-27) ;
DE (PACAP27) ; Pituitary adenylate cyclase activating polypeptide-38
DE (PACAP-38) (PACAP38)].
GN ADCYAP1.
OS Gallus gallus (Chicken).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae;
OC Gallus.
OX NCBI_TaxID=9031;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=97174314; PubMed=9022048;
RA McRory J.E., Parker R.L., Sherwood N.M.;
RT "Expression and alternative processing of a chicken gene encoding
RT both growth hormone-releasing hormone and pituitary adenylate
RT cyclase-activating polypeptide.";
RL DNA Cell Biol. 16:95-102(1997).
RN [2]
RP SEQUENCE OF 131-168.
RA Yasuhara T., Mizuno K., Somogyvari-Vigh A., Komaki G., Azimura A.;
RT "Isolation and primary structure of chicken PACAP.";
RL Regul. Pept. 37:326-326(1992).
CC -!- FUNCTION: Primary role of GRF is to release GH from the pituitary.
CC -!- FUNCTION: PACAP plays pivotal roles as a neurotransmitter and/or a
CC neuromodulator.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- ALTERNATIVE PRODUCTS:
CC Event=Alternative splicing; Named isoforms=3;
CC Name=GRF 1-46;
CC IsoId=P41534-1; Sequence=Displayed;
CC Name=GRF 1-43;
CC IsoId=P41534-2; Sequence=VSP_001760;
CC Name=GRF 33-46;

```

-1- SIMILARITY: Belongs to the glucagon family.

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EMBL; U71183; AB051200.1; --
EMBL; U71184; AB051201.1; --
EMBL; U71185; AB051202.1; --
InterPro; IPR000532; Glucagon.
Pfam; PF00123; hormone2; 2.
PRINTS; PR00275; GLUCAGON.
SMART; SMO0070; GLUCA; 2.
PROSITE; PS00260; GLUCAGN; 2.
Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
Amidation; Alternative splicing.
SIGNAL 1 23 POTENTIAL.
GROWTH HORMONE-RELEASING FACTOR 1-46.
PEPTIDE 80
PEPTIDE 83 128
PEPTIDE 131 168
PEPTIDE 131 157
MOD RES 157
MOD RES 168
VARSPIC 82 114 (/FTID=VSP 001759)
Missing (in isoform GRF 1-43). /FTID=VSP 001760.
VARSPIC 115 117
SEQUENCE 175 AA; 19560 MW; ODB54995FOA9DFB CRC64;

Query Match 43.7%; Score 87; DB 1; Length 175;
Best Local Similarity 50.0%; Pred. No. 8.9e-05;
Matches 16; Conservative 7; Mismatches 7; Indels 0; Gaps 0;

QY 1 YANAIFTSRYKVLGSLARKLLQDIMSRQQ 32
D83 HADGFISKAYRKLGQLGSARNYLHLSLMXRVG 114

RESULT 10 SLI_E_CYPCA STANDARD; PRT; 45 AA.
AC P42692;
DT DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 01-NOV-1995 (Rel. 32, Last annotation update)
DE Somatolibetin (growth hormone-releasing factor) (GRF) (Growth hormone-releasing hormone) (GHRH).
OS Cyprinus carpio (Common carp).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neotrygonia; Teleostei; Osteichthyes; Cypriniformes; Cyprinidae; Cyprinus.
NCBI_TaxID=7962;
RN [1]
RP SEQUENCE, AND SYNTHESIS.
RC TISSEU-Hypothalamus;
RX MEDLINE=G3116845; PubMed=1475012;
RA Vaughan J.M., Rivier J., Spies J., Peng C., Chang J.P., Peter R.E., Vale W.;
RT "Isolation and characterization of hypothalamic growth-hormone releasing factor from common carp, Cyprinus carpio.";
RL Neuroendocrinology 56:539-549(1992).
CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the adenohypophyse to stimulate the secretion of growth hormone.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- SIMILARITY: Belongs to the glucagon family.

DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 1.
DR SMART; SMO0070; GLUCA; 1.
DR PROSITE; PS00260; GLUCAGN; 1.
KW Glucagon family; Hypothalamus.
SQ SEQUENCE 45 AA; 4979 MW; 67C9E8A06B24AE94 CRC64;

Query Match 43.2%; Score 86; DB 1; Length 45;
Best Local Similarity 50.0%; Pred. No. 2.9e-05;
Matches 16; Conservative 8; Mismatches 8; Indels 0; Gaps 0;

QY 1 YANAIFTSRYKVLGSLARKLLQDIMSRQQ 32
Db 1 HADGMFNKAYRKLALGLSKAKLYLTLMXRVG 32

RESULT 11 PACA_MOUSE STANDARD; PRT; 175 AA.
AC Q70176;
DT 16-OCT-2001 (Rel. 40, Created)
DT 16-OCT-2001 (Rel. 40, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Pituitary adenylate cyclase activating polypeptide precursor (PACAP)
DE Contains: PACAP-related peptide (PrP-48); Pituitary adenylate cyclase activating polypeptide-27 (PACAP-27) (PACAP27); Pituitary adenylate cyclase activating polypeptide-38 (PACAP-38) (PACAP38).
GN ADCYAP1 OR PACAP.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
NCBI_TaxID=10090;
BX [1]
RP SEQUENCE FROM N.A.
RC STRAIN=129/SVJ;
RX MEDLINE=98241502; Pubmed=9573339;
RA Yanamoto K., Hashimoto H., Hagihara N., Nishino A., Fujita T., Matsuda T., Baba A.;
RT "Cloning and characterization of the mouse pituitary adenylate cyclase-activating polypeptide (PACAP) gene";
RL Gene 211:63-69(1998).
[2]
RP SEQUENCE FROM N.A.
RC STRAIN=C57BL/6; Tissue=Brain;
RX MEDLINE=22389257; PubMed=12477932;
RA Strausberg R.B., Feingold E.A., Grouse L.H., Derge J.G., Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D., Altshul S.F., Zeeberg B., Buettow K.H., Schaefer C.F., Bhat N.K., Hopkins R.F., Jordan H., Moore T., Max S.I., Wang X.J., Hinrichsen F., Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L., Brownstein M.J., Udman T.B., Toshyuki S., Carninci P., Prange C., Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullaly S.J., Bosak S.A., McSwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H., Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W., Villalon D.K., Munzly D.N., Sodergren E.J., Lu X., Gibbs R.A., Sanchez A., Fahey J., Helton E., Ketteman M., Madan A., Rodriguez S., Sanchez A., Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G., Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C., Rodriguez A.C., Grimwood J., Schultz J., Myers R.M., Bottingfield Y.L.N., Krzywinski M.I., Skalska U., Smalley D.E., Schermerch A., Schein J.E., Jones S.J.M., Barra M.A.;
RT "Generation and initial analysis of more than 15,000 full-length human and mouse cDNA sequences";
RL Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
CC -!- FUNCTION: Stimulates adenylylate cyclase in pituitary cells.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- SIMILARITY: Belongs to the glucagon family.

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[illegible]

RA Yamagami T., Ohsawa K., Nishizawa M., Inoue C., Gotoh E.,
RA Yanaihara N., Yamamoto H., Okamoto H.;
RT "Complete nucleotide sequence of human vasoactive intestinal
RT peptide/PHM-27 gene and its inducible promoter.";
RL Ann. N.Y. Acad. Sci. 527:87-102(1988).
RN [3]
RN SEQUENCE FROM N.A.
RP MEDLINE=86004065; PubMed=3899557;
RX Tsukada T., Horovitch S.J., Montminy M.R., Mandel G., Goodman R.H.;
RA "Structure of the human vasoactive intestinal polypeptide gene.";
RL DNA 4:293-300(1985).
RN [4]
RN SEQUENCE FROM N.A.
RP MEDLINE=87092456; PubMed=3025882;
RX Linder S., Barkhem T., Norberg A., Persson H., Schalling M.,
RA Hoekfelt T., Magnusson G.;
RT "Structure and expression of the gene encoding the vasoactive
RT intestinal peptide precursor.";
RL Proc. Natl. Acad. Sci. U.S.A. 84:605-609(1987).
RN [5]
RN SEQUENCE FROM N.A.
RP MEDLINE=86016352; PubMed=2995945;
RX Delanarter J.F., Buell G.N., Kawashima E., Polak J.M., Bloom S.R.;
RA "Vasoactive intestinal peptide: expression of the prohormone in
RT bacterial cells.";
RL Peptides 6:95-102(1985).
RN [6]
RN SEQUENCE FROM N.A.
RP TISSUE=Prostate;
RX MEDLINE=22388257; PubMed=12477932;
RA Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,
RA Klausner R.D., Collins F.S., Wagner L., Sherman C.M., Schuler G.D.,
RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,
RA Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,
RA Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,
RA Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,
RA Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,
RA Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,
RA Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
RA Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,
RA Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,
RA Fahy J., Helton E., Kettman M., Madan A., Rodriguez S., Sanchez A.,
RA Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,
RA Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,
RA Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,
RA Butterfield Y.S.N., Krzyzinski M.I., Skalska U., Smailus D.E.,
RA Schnerch A., Schein J.E., Jones S.J.M., Marra M.A.;
RT "Generation and initial analysis of more than 15,000 full-length
RT human and mouse cDNA sequences.";
RL Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
RN [7]
RN SEQUENCE OF 8-170 FROM N.A.
RP MEDLINE=86313155; PubMed=3748844;
RX Gozes I., Bodener M., Shani Y., Fridkin M.;
RA "Structure and expression of the vasoactive intestinal peptide (VIP)
RT gene in a human tumor.";
RL Peptides 7:1-6(1986).
RN [8]
RN SEQUENCE OF 50-170 FROM N.A.
RP TISSUE=Pancratic carcinoma;
RX MEDLINE=84066682; PubMed=6139527;
RA Bloom S.R., Delanarter J.F., Kawashima E., Christofides N.D.,
RA Buell G., Polak J.M.;
RT "Diarrhoea in vipoma patients associated with cosecretion of a second
RT active peptide (peptide histidine isoleucine) explained by single
RT coding gene.";
RL Lancet 2:1163-1165(1983).
RN [9]
RN SEQUENCE OF 78-155 FROM N.A.
RX MEDLINE=87140054; PubMed=2434617;
RA Gozes I., Giladi E., Shani Y.;
RT "Vasoactive intestinal peptide gene: Putative mechanism of information
RT storage at the RNA level.";

J. Neurochem. 47:1136-1141(1987).
RN [10]
RN SEQUENCE OF 81-122
RX MEDLINE=88007645; PubMed=3654650;
RA Yiangou Y., di Marzo V., Spokes R.A., Panico M., Morris H.R.,
RA Bloom S.R.;
RT "Isolation, characterization, and pharmacological actions of peptide
RT histidine valine 42, a novel prepro-vasoactive intestinal peptide-
RT derived peptide";
RL J. Biol. Chem. 262:14010-14013(1987).
RN [11]
RN SEQUENCE OF 127-152.
RP TISSUE=Pheochromocytoma;
RX MEDLINE=92287083; PubMed=1318039;
RA Kitamura K., Kangawa K., Kawamoto M., Ichiki Y., Matsuo H., Eto T.;
RT "Isolation and characterization of peptides which act on rat
RT platelets, from a pheochromocytoma";
RL Biochem. Biophys. Res. Commun. 185:134-141(1992).
RN [12]
RN STRUCTURE BY NMR OF VIP.
RX MEDLINE=91322343; PubMed=1863695;
RA Theriault Y., Boulanger Y., St. Pierre S.;
RT "Structural determination of the vasoactive intestinal peptide by
RT two-dimensional H-NMR spectroscopy.";
RL Biopolymers 31:459-464(1991).
CC -!- FUNCTION: VIP causes vasodilation, lowers arterial blood pressure,
CC stimulates myocardial contractility, increases glycolysis and
CC relaxes the smooth muscle of trachea, stomach and gall bladder.
CC -!- FUNCTION: PHM and PHV also cause vasodilation.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- SIMILARITY: Belongs to the glucagon family.
CC -----
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CC -----
DR EMBL; L00157; AAA61289.1; -
DR EMBL; L00154; AAA61289.1; JOINED.
DR EMBL; L00155; AAA61289.1; JOINED.
DR EMBL; L00156; AAA61289.1; JOINED.
DR EMBL; M33027; AAA69515.1; -
DR EMBL; M11553; AAA61284.1; -
DR EMBL; M11549; AAA61284.1; JOINED.
DR EMBL; M11550; AAA61284.1; JOINED.
DR EMBL; M11551; AAA61284.1; JOINED.
DR EMBL; M11552; AAA61284.1; JOINED.
DR EMBL; M14623; AAA61288.1; -
DR EMBL; M14619; AAA61288.1; JOINED.
DR EMBL; M14620; AAA61288.1; JOINED.
DR EMBL; M14621; AAA61288.1; JOINED.
DR EMBL; M14622; AAA61288.1; JOINED.
DR EMBL; M36610; AAA61286.1; -
DR EMBL; M36606; AAA61286.1; JOINED.
DR EMBL; M36607; AAA61286.1; JOINED.
DR EMBL; M36608; AAA61286.1; JOINED.
DR EMBL; M36609; AAA61286.1; JOINED.
DR EMBL; BC009794; AAH09794.1; -
DR EMBL; M36634; AAA61287.1; -
DR EMBL; M54930; AAA63268.1; -
DR EMBL; M32162; AAA61285.1; -
DR EMBL; M31645; AAA61285.1; JOINED.
DR PIR; A23296; VRHU.
DR Genew; HGNC:12693; VIP.
DR MIM; 192320; -
DR GO; GO:0005184; F:neuropeptide hormone activity; TAS.
DR GO; GO:0007589; P:fluid secretion; TAS.
DR GO; GO:0007186; P:G-protein coupled receptor protein signalin.; TAS.
DR GO; GO:0008284; P:positive regulation of cell proliferation; TAS.
DR InterPro; IPR000532; Glucagon.

DR Pfam: PF00123; hormone2; 2.
DR PRINTS; PR00275; GLUCAGON.
DR SMART; SM00070; GLUCA; 2.
DR PROSITE; PS00260; GLUCAGON; 2.
KW Glucagon family; Cleavage on pair of basic residues; Signal;
KW Amidation; Hormone.
FT SIGNAL 1 20 POTENTIAL.
FT PROPEP 21 79
FT PEPTIDE 81 107
FT PEPTIDE 81 122
FT PEPTIDE 125 152
FT PROPEP 156 170
FT MOD RES 107 107
FT MOD RES 152 152
FT CONFLICT 96 97
FT CONFLICT 113 113
FT CONFLICT 116 116
FT CONFLICT 136 136
SQ SEQUENCE 170 AA; 19168 MW; 93EC0177F89508FD CRC64;
Query Match 40.2%; Score 80; DB 1; Length 170;
Best Local Similarity 36.8%; Pred. No. 0.00079;
Matches 14; Conservative 12; Mismatches 12; Indels 0; Gaps 0;
QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSRQOGERNQEN 38
DB 81 HADGVFTSDFSLGQLSARKYLESLMGRVSSNISIED 118
RESULT 14
VIP_CAVPO STANDARD; PRT; 72 AA.
AC P04566;
DT 13-AUG-1987 (Rel. 05, Created)
DT 01-AUG-1990 (Rel. 15, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Vasoactive intestinal peptide precursor (VIP) (Fragment).
DE VIP.
OS Cavia porcellus (Guinea pig).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
OX NCBI_TaxID=10141;
RN [1]
RP SEQUENCE OF 1-27 AND 45-72.
RX MEDLINE=90254163; PubMed=2340294;
RA Buscail L., Cauvin A., Gourlet P., Gossen D., de Neef P., Rathe J.,
RA Robberecht P., Vandermeers-Piret M.-C., Vandermeers A., Christophe J.;
RT "Purification and amino acid sequence of vasoactive intestinal
RT peptide, peptide histidine isoleucineamide (1-27) and secretin from
RT the small intestine of guinea pig".
RL Biochim. Biophys. Acta 1038:355-359(1990).
RN [2]
RP SEQUENCE OF 45-72.
RX MEDLINE=86313167; PubMed=3748846;
RA Eng J., Du B.-H., Raufman J.-P., Yalow R.S.;
RT "Purification and amino acid sequences of dog, goat and guinea pig
RT VIPs".
RL Peptides 7 Suppl. 1:17-20(1986).
RN [3]
RP SEQUENCE OF 45-72.
RX MEDLINE=85225523; PubMed=4004849;
RA Du B.-H., Eng J., Hulmes J.D., Chang M., Pan Y.-C.E., Yalow R.S.;
RT "Guinea pig has a unique mammalian VIP.";
RL Biochem. Biophys. Res. Commun. 128:1093-1098(1985).
CC -1- FUNCTION: VIP causes vasodilation, lowers arterial blood pressure,
CC stimulates myocardial contractility, increases glycogenolysis and
CC relaxes the smooth muscle of trachea, stomach and gall bladder.
CC -1- FUNCTION: PHI also causes vasodilation.
CC -1- SUBCELLULAR LOCATION: Secreted.
CC -1- MISCELLANEOUS: X's at positions 28 to 44 were included by homology
CC with the human precursor sequence.
CC -1- SIMILARITY: Belongs to the glucagon family.
CC PIR; A26175; VRGP.
DR

DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 2.
DR PRINTS; PR00275; GLUCAGON.
DR SMART; SM00070; GLUCA; 2.
DR PROSITE; PS00260; GLUCAGON; 2.
KW Glucagon family; Cleavage on pair of basic residues; Amidation;
KW Hormone.
FT NON_TER 1 1
FT PEPTIDE 1 27
FT PEPTIDE 45 72
FT MOD RES 27 27
FT MOD RES 72 72
FT NON_TER 72 72
SQ SEQUENCE 72 AA; 8241 MW; D7B696E02C3C63FD CRC64;
Query Match 38.2%; Score 76; DB 1; Length 72;
Best Local Similarity 48.1%; Pred. No. 0.0011;
Matches 13; Conservative 9; Mismatches 5; Indels 0; Gaps 0;
QY 1 YANAIFTSYRKVLGQLSARKLLQDIM 27
DB 1 HADGVFTSDFSLGQLSARKYLESLI 27
RESULT 15
PACA_SHEEP STANDARD; PRT; 176 AA.
AC P16613;
DT 01-AUG-1990 (Rel. 15, Created)
DT 01-AUG-1990 (Rel. 15, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Pituitary adenylate cyclase activating polypeptide precursor (PACAP)
DE [Contains: PACAP-related peptide (PRP-48); Pituitary adenylate cyclase
DE activating polypeptide-27 (PACAP-27) (PACAP27); Pituitary adenylate
DE cyclase activating polypeptide-38 (PACAP-38) (PACAP38)].
GN ADCYAP1.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
OX NCBI_TaxID=9940;
RN [1]
RP SEQUENCE FROM N.A.
RX TISSUE=Hypothalamus;
RX MEDLINE=90147744; PubMed=2302217;
RA Kimura C., Ohkubo S., Ogi K., Hosoya M., Itoh Y., Onda H.,
RA Miyata A., Jiang L., Dahl R.D., Stibbs H.H., Arimura A., Fujino M.;
RT "A novel peptide which stimulates adenylate cyclase: molecular
RT cloning and characterization of the ovine and human cDNAs".
RL Biochem. Biophys. Res. Commun. 166:81-89(1990).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=92153305; PubMed=1739432;
RX Ohkubo S., Kimura C., Ogi K., Okazaki K., Hosoya M., Onda H.,
RA Miyata A., Arimura A., Fujino M.;
RT "Primary structure and characterization of the precursor to human
RT pituitary adenylate cyclase activating polypeptide.";
RL DNA Cell Biol. 11:21-30(1992).
RN [3]
RP SEQUENCE OF 132-158.
RX MEDLINE=90343780; PubMed=2383262;
RA Miyata A., Jiang L., Dahl R.D., Kitada C., Kubo K., Fujino M.,
RA Minamino N., Arimura A.;
RT "Isolation of a neuropeptide corresponding to the N-terminal 27
RT residues of the pituitary adenylate cyclase activating polypeptide
RT with 38 residues (PACAP38).";
RL Biochem. Biophys. Res. Commun. 170:643-648(1990).
CC -1- FUNCTION: Stimulates adenylate cyclase in pituitary cells.
CC -1- SUBCELLULAR LOCATION: Secreted.
CC -1- SIMILARITY: Belongs to the glucagon family.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -

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OM protein - protein search, using sw model

Run on: July 12, 2004, 20:44:17 ; Search time 35.5 Seconds
(without alignments)
355.513 Million cell updates/sec

Title: US-10-021-403A-1

Perfect score: 199

Sequence: 1 YANAIFNYSYRKVLGQLSARKLLQDMSRQOGERNQENCA 40

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1017041 seqs, 315518202 residues

Total number of hits satisfying chosen parameters: 1017041

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

SPTREMBL 25:*

- 1: sp archaea:*
- 2: sp bacteria:*
- 3: sp fungi:*
- 4: sp human:*
- 5: sp invertebrate:*
- 6: sp mammal:*
- 7: sp mhc:*
- 8: sp organelle:*
- 9: sp phage:*
- 10: sp plant:*
- 11: sp rodent:*
- 12: sp virus:*
- 13: sp vertebrate:*
- 14: sp unclassified:*
- 15: sp virus:*
- 16: sp bacterioph:*
- 17: sp archaea:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	146	73.4	138	11 P97567	P97567 rattus norv
2	136	68.3	59	6 Q866F9	Q866F9 bos mutus g
3	124	62.3	28	6 Q9XS89	Q9XS89 equus cabal
4	112	56.3	26	6 P79406	P79406 sus scrofa
5	94	47.2	41	6 Q9TU30	Q9TU30 bos taurus
6	86	43.2	170	11 Q8BTJ8	Q8BTJ8 mus musculus
7	86	43.2	172	13 Q9DE29	Q9DE29 brachydanio
8	83	41.7	173	13 Q98SP5	Q98SP5 oncorhynch
9	78	39.2	202	13 Q7ZYX8	Q7ZYX8 xenopus lae
10	77	38.7	89	13 Q98SP6	Q98SP6 anas platyr
11	76	38.2	170	6 Q8MI77	Q8MI77 bos taurus
12	74	37.2	153	11 Q7TSR4	Q7TSR4 arvicanthi
13	74	37.2	171	11 Q9DZ27	Q9DZ27 mus musculus
14	70	35.2	171	13 Q9PUF8	Q9PUF8 xenopus lae
15	68	34.2	427	10 Q94CE6	Q94CE6 arabidopsis
16	68	34.2	432	10 Q9MTX3	Q9MTX3 arabidopsis

17	68	34.2	758	10 Q9C838	Q9C838 arabidopsis
18	61	30.7	175	13 Q90XZ4	Q90XZ4 ictalurus p
19	60	30.2	531	5 Q9VSV1	Q9VSV1 drosophila
20	59	29.6	138	13 Q98SP4	Q98SP4 oncorhynch
21	59	29.6	502	10 Q8GYE3	Q8GYE3 arabidopsis
22	59	29.6	537	10 Q9C7X2	Q9C7X2 arabidopsis
23	58.5	29.4	424	16 Q8DWW8	Q8DWW8 streptococ
24	58	29.1	175	13 Q98TU3	Q98TU3 brachydanio
25	57	28.6	275	4 Q8NCL9	Q8NCL9 homo sapien
26	57	28.6	319	11 Q9JLS1	Q9JLS1 mus musculu
27	57	28.6	620	5 Q9UIU0	Q9UIU0 caenorhabdi
28	56.5	28.4	423	16 Q9A1H6	Q9A1H6 streptococ
29	56.5	28.4	423	16 Q8P2N5	Q8P2N5 streptococ
30	56.5	28.4	423	16 Q8K8N2	Q8K8N2 streptococ
31	56.5	28.4	525	3 Q94142	Q94142 gibberella
32	55.5	27.9	699	11 Q7TP87	Q7TP87 rattus norv
33	55	27.6	28	13 Q9PRN8	Q9PRN8 carassius a
34	55	27.6	675	16 Q7VDH7	Q7VDH7 prochloroco
35	55	27.6	1036	13 Q9W603	Q9W603 xenopus lae
36	55	27.6	1040	5 Q9N5D9	Q9N5D9 caenorhabdi
37	54.5	27.4	424	16 Q8E3E2	Q8E3E2 streptococ
38	54.5	27.4	424	16 Q8DXS2	Q8DXS2 streptococ
39	54	27.1	38	5 Q8IU39	Q8IU39 dugesia jap
40	54	27.1	38	5 Q8IU38	Q8IU38 hydra magni
41	54	27.1	38	5 Q8IU37	Q8IU37 sepioteuthi
42	54	27.1	38	5 Q8IU36	Q8IU36 periplaneta
43	54	27.1	38	13 Q8AYP5	Q8AYP5 trachurus j
44	54	27.1	38	13 Q8AYP4	Q8AYP4 acipenser s
45	54	27.1	81	15 Q98ZY1	Q98ZY1 human immun

ALIGNMENTS

RESULT 1

P97567 ID AC P97567 PRELIMINARY; PRT; 138 AA.
 DT 01-MAY-1997 (TREMBLrel. 03, Created)
 DT 01-MAY-1997 (TREMBLrel. 03, Last sequence update)
 DT 01-JUN-2003 (TREMBLrel. 24, Last annotation update)
 DE Pre-progrowth hormone releasing factor.
 GN GHRH.
 OS Rattus norvegicus (Rat).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
 OX NCBI_TaxID=10116;
 RN [1]_TaxID=10116;
 RP SEQUENCE FROM N.A.
 RC STRAIN=Sprague-Dawley; TISSUE=Placenta;
 RX MEDLINE=97188624; PubMed=9037209;
 RA Perez-Riba M., Gonzalez-Crespo S., Boronat A.;
 RT "Differential splicing of the growth hormone-releasing hormone gene in
 rat placenta generates a novel pre-proGHRH mRNA that encodes a
 RT different C-terminal flanking peptide.";
 RL FEBS Lett. 402:273-276(1997).
 DR EMBL; U41183; AAC53041.1; -
 DR GO; GO:0005576; C:extracellular; IEA.
 DR GO; GO:0005179; F:hormone activity; IEA.
 DR InterPro; IPR000532; Glucagon.
 DR Pfam; PF00123; hormone2; 1.
 DR SMART; SM00070; GLUCA; 1.
 DR PROSITE; PS00260; GLUCAGON; 1.
 SQ SEQUENCE 138 AA; 16226 MW; E9FD1336E48F4350 CRC64;

Query Match 73.4%; Score 146; DB 11; Length 138;
 Best Local Similarity 75.7%; Pred. No. 2.3e-12;
 Matches 28; Conservative 7; Mismatches 2; Indels 0; Gaps 0;

Qy 1 YANAIFNYSYRKVLGQLSARKLLQDMSRQOGERNQ 37

Db 31 HADAIFTSYRILGQLYARKLLHEIMNQGERNQ 67

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RESULT 2
Q866F9 PRELIMINARY; PRT; 59 AA.
ID Q866F9
AC Q866F9;
DT 01-JUN-2003 (TrEMBLrel. 24, Created)
DT 01-JUN-2003 (TrEMBLrel. 24, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE Growth hormone releasing hormone (Fragment).
OS Bos mutus grunniens (Yak).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC Bovidae; Bovinae; Bos.
NCBI_TaxID=30521;
RN [1]_
RP SEQUENCE FROM N.A.
RC TISSUE=Blood;
RA Ou J.T., Zhong J.C., Chen Z.H., Wu H., Rao K.Q.;
RT "T-A cloning and sequencing analysis on growth hormone releasing
RT hormone gene of Yak.";
RL Submitted (DEC-2002) to the EMBL/GenBank/DBJ databases.
DR EMBL; AV208309; AAC26310.1; -.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 1.
DR SMART; SM00070; GLUCA; 1.
DR PROSITE; PS00260; GLUCAGON; 1.
FT NON_TER 59
FT SEQUENCE 59 AA; 6705 MW; D5CA5663B74135A5 CRC64;
SQ

Query Match 68.3%; Score 136; DB 6; Length 59;
Best Local Similarity 96.6%; Pred. No. 2.2e-11;
Matches 28; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 YANAIFNYSYRKVLGQLSARKLLQDIMSR 29
Db 31 YADAIFNYSYRKVLGQLSARKLLQDIMSR 59
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RESULT 3
Q9XS89 PRELIMINARY; PRT; 28 AA.
ID Q9XS89
AC Q9XS89;
DT 01-NOV-1999 (TrEMBLrel. 12, Created)
DT 01-NOV-1999 (TrEMBLrel. 12, Last sequence update)
DT 01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE Growth hormone-releasing factor (Fragment).
GN GHRH.
OS Equus caballus (Horse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Perissodactyla; Equidae; Equus.
NCBI_TaxID=9796;
RN [1]_
RP SEQUENCE FROM N.A.
RX MEDLINE=99160468; PubMed=10051323;
RA Caetano A.R., Pomp D., Murray J.D., Bowling A.T.;
RT "Comparative mapping of 18 equine type I genes assigned by somatic
RT cell hybrid analysis.";
RL Mamm. Genome 10:271-276(1999).
DR EMBL; AF097587; AAD25990.1; -.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 1.
DR SMART; SM00070; GLUCA; 1.
FT NON_TER 1
FT NON_TER 28
FT SEQUENCE 28 AA; 3223 MW; D988D32A3C8FC531 CRC64;
SQ

Query Match 62.3%; Score 124; DB 6; Length 28;
Best Local Similarity 89.3%; Pred. No. 4.7e-10;
Matches 25; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

QY 1 YANAIFNYSYRKVLGQLSARKLLQDIMSR 29
Db 31 YADAIFNYSYRKVLGQLSARKLLQDIMSR 59
|||||
|||||

RESULT 4
P79406 PRELIMINARY; PRT; 26 AA.
ID P79406;
AC P79406;
DT 01-MAY-1997 (TrEMBLrel. 03, Created)
DT 01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
DT 01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE Growth hormone-releasing hormone (Fragment).
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
NCBI_TaxID=9823;
RN [1]_
RP SEQUENCE FROM N.A.
RA Baskin L.C., Pomp D.;
RT "Restriction fragment length polymorphism in amplification products of
RT the porcine growth hormone-releasing hormone gene.";
RL Submitted (FEB-1997) to the EMBL/GenBank/DBJ databases.
DR EMBL; U90275; AAB49991.1; -.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 1.
FT NON_TER 1
FT NON_TER 26
FT SEQUENCE 26 AA; 3012 MW; 5C0827E466CA4FC6 CRC64;
SQ

Query Match 56.3%; Score 112; DB 6; Length 26;
Best Local Similarity 100.0%; Pred. No. 2.1e-08;
Matches 23; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YANAIFNYSYRKVLGQLSARKLL 23
Db 4 YANAIFNYSYRKVLGQLSARKLL 26
|||||
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RESULT 5
Q9TU30 PRELIMINARY; PRT; 41 AA.
ID Q9TU30
AC Q9TU30;
DT 01-MAY-2000 (TrEMBLrel. 13, Created)
DT 01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT 01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE Growth hormone releasing hormone (Fragment).
GN GHRH.
OS Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC Bovidae; Bovinae; Bos.
NCBI_TaxID=9913;
RN [1]_
RP SEQUENCE FROM N.A.
RA Lee S.H., Sang B.C., Kim H.B., Jin H.J., Kim S.K.;
RT "The characterization and polymorphism of growth hormone releasing
RT hormone (GHRH) gene by the direct sequencing methods in cattle.";
RL Submitted (JUL-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF168686; AAD55262.1; -.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 1.
FT NON_TER 1
FT NON_TER 41
FT SEQUENCE 41 AA; 4473 MW; BD07604B7126D5A9 CRC64;
SQ

Query Match 47.2%; Score 94; DB 6; Length 41;
Best Local Similarity 95.0%; Pred. No. 1.1e-05;

QY 1 YANAIFNYSYRKVLGQLSARKLLQDIMSR 28
Db 1 ADAIFNYSYRKVLGQLSARKLLQDIMSR 28
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RESULT 2
Q866F9 PRELIMINARY; PRT; 59 AA.
ID Q866F9
AC Q866F9;
DT 01-JUN-2003 (TrEMBLrel. 24, Created)
DT 01-JUN-2003 (TrEMBLrel. 24, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE Growth hormone releasing hormone (Fragment).
OS Bos mutus grunniens (Yak).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC Bovidae; Bovinae; Bos.
NCBI_TaxID=30521;
RN [1]_
RP SEQUENCE FROM N.A.
RC TISSUE=Blood;
RA Ou J.T., Zhong J.C., Chen Z.H., Wu H., Rao K.Q.;
RT "T-A cloning and sequencing analysis on growth hormone releasing
RT hormone gene of Yak.";
RL Submitted (DEC-2002) to the EMBL/GenBank/DBJ databases.
DR EMBL; AV208309; AAC26310.1; -.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 1.
DR SMART; SM00070; GLUCA; 1.
DR PROSITE; PS00260; GLUCAGON; 1.
FT NON_TER 59
FT SEQUENCE 59 AA; 6705 MW; D5CA5663B74135A5 CRC64;
SQ

Query Match 68.3%; Score 136; DB 6; Length 59;
Best Local Similarity 96.6%; Pred. No. 2.2e-11;
Matches 28; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 YANAIFNYSYRKVLGQLSARKLLQDIMSR 29
Db 31 YADAIFNYSYRKVLGQLSARKLLQDIMSR 59
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RESULT 3
Q9XS89 PRELIMINARY; PRT; 28 AA.
ID Q9XS89
AC Q9XS89;
DT 01-NOV-1999 (TrEMBLrel. 12, Created)
DT 01-NOV-1999 (TrEMBLrel. 12, Last sequence update)
DT 01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE Growth hormone-releasing factor (Fragment).
GN GHRH.
OS Equus caballus (Horse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Perissodactyla; Equidae; Equus.
NCBI_TaxID=9796;
RN [1]_
RP SEQUENCE FROM N.A.
RX MEDLINE=99160468; PubMed=10051323;
RA Caetano A.R., Pomp D., Murray J.D., Bowling A.T.;
RT "Comparative mapping of 18 equine type I genes assigned by somatic
RT cell hybrid analysis.";
RL Mamm. Genome 10:271-276(1999).
DR EMBL; AF097587; AAD25990.1; -.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 1.
DR SMART; SM00070; GLUCA; 1.
FT NON_TER 1
FT NON_TER 28
FT SEQUENCE 28 AA; 3223 MW; D988D32A3C8FC531 CRC64;
SQ

Query Match 62.3%; Score 124; DB 6; Length 28;
Best Local Similarity 89.3%; Pred. No. 4.7e-10;
Matches 25; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

QY 1 YANAIFNYSYRKVLGQLSARKLLQDIMSR 29
Db 31 YADAIFNYSYRKVLGQLSARKLLQDIMSR 59
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RESULT 4
P79406 PRELIMINARY; PRT; 26 AA.
ID P79406;
AC P79406;
DT 01-MAY-1997 (TrEMBLrel. 03, Created)
DT 01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
DT 01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE Growth hormone-releasing hormone (Fragment).
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
NCBI_TaxID=9823;
RN [1]_
RP SEQUENCE FROM N.A.
RA Baskin L.C., Pomp D.;
RT "Restriction fragment length polymorphism in amplification products of
RT the porcine growth hormone-releasing hormone gene.";
RL Submitted (FEB-1997) to the EMBL/GenBank/DBJ databases.
DR EMBL; U90275; AAB49991.1; -.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 1.
FT NON_TER 1
FT NON_TER 26
FT SEQUENCE 26 AA; 3012 MW; 5C0827E466CA4FC6 CRC64;
SQ

Query Match 56.3%; Score 112; DB 6; Length 26;
Best Local Similarity 100.0%; Pred. No. 2.1e-08;
Matches 23; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YANAIFNYSYRKVLGQLSARKLL 23
Db 4 YANAIFNYSYRKVLGQLSARKLL 26
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RESULT 5
Q9TU30 PRELIMINARY; PRT; 41 AA.
ID Q9TU30
AC Q9TU30;
DT 01-MAY-2000 (TrEMBLrel. 13, Created)
DT 01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT 01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE Growth hormone releasing hormone (Fragment).
GN GHRH.
OS Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC Bovidae; Bovinae; Bos.
NCBI_TaxID=9913;
RN [1]_
RP SEQUENCE FROM N.A.
RA Lee S.H., Sang B.C., Kim H.B., Jin H.J., Kim S.K.;
RT "The characterization and polymorphism of growth hormone releasing
RT hormone (GHRH) gene by the direct sequencing methods in cattle.";
RL Submitted (JUL-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF168686; AAD55262.1; -.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 1.
FT NON_TER 1
FT NON_TER 41
FT SEQUENCE 41 AA; 4473 MW; BD07604B7126D5A9 CRC64;
SQ

Query Match 47.2%; Score 94; DB 6; Length 41;
Best Local Similarity 95.0%; Pred. No. 1.1e-05;

QY 1 YANAIFNYSYRKVLGQLSARKLLQDIMSR 28
Db 1 ADAIFNYSYRKVLGQLSARKLLQDIMSR 28
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Matches 19; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSAR 20
DB 21 YADAIFTSYRKVLGQLSAR 40
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||:|||||

RESULT 6
Q8BJT8 PRELIMINARY; PRT; 170 AA.
ID Q8BJT8
AC Q8BJT8
DT 01-MAR-2003 (TrEMBLrel. 23, Created)
DT 01-MAR-2003 (TrEMBLrel. 23, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE Pituitary adenylate cyclase activating polypeptide precursor.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=C57BL/6J; TISSUE=Hypothalamus;
RX MEDLINE=22354683; PubMed=12466851;
RA The FANTOM Consortium,
RA the RIKEN Genome Exploration Research Group Phase I & II Team;
RT "Analysis of the mouse transcriptome based on functional annotation of
RT 60,770 full-length cDNAs.";
RL Nature 420:563-573 (2002).
DR EMBL; AK079530; BAC37673.1; -.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 2.
DR PRINTS; SM00275; GLUCAGON.
DR SMART; SM00070; GLUCA; 2.
DR PROSITE; PS00260; GLUCAGON; 1.
SQ SEQUENCE 170 AA; 18764 MW; C6B8C2C2C8860852 CRC64;

Query Match 43.2%; Score 86; DB 11; Length 170;
Best Local Similarity 56.2%; Pred. No. 0.0068;
Matches 18; Conservative 5; Mismatches 9; Indels 0; Gaps 0;

QY 2 ANAIFTSYRKVLGQLSARKLLQDIMSQQE 33
DB 83 AHEILNEAYRKVLQDLSARKYLQSVVARGAGE 114
||:|||||
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RESULT 7
Q9DE29 PRELIMINARY; PRT; 172 AA.
ID Q9DE29
AC Q9DE29
DT 01-MAR-2001 (TrEMBLrel. 16, Created)
DT 01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DT 01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE Growth hormone-releasing hormone/pituitary adenylate cyclase-
DE activating polypeptide.
GN ADCYAP1.
OS Brachydanio rerio (Zebrafish) (Danio rerio).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
OC Cyprinidae; Danio.
OX NCBI_TaxID=7955;
RN [1]
RP SEQUENCE FROM N.A.
RA Fradinger E.A.; Sherwood N.M.;
RT "Characterization of the gene encoding both growth hormone-releasing
RT hormone (GRF) and pituitary adenylate cyclase-activating polypeptide
RT (PACAP) in the zebrafish.";
RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF217251; AAG36782.1; -.
DR ZFIN; ZDB-GENE-020809-4; adcyap1.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.

DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 2.
DR PRINTS; PR00275; GLUCAGON.
DR SMART; SM00070; GLUCA; 2.
DR PROSITE; PS00260; GLUCAGON; 2.
FT CHAIN 81 125 GROWTH HORMONE-RELEASING HORMONE.
FT CHAIN 128 165 PITUITARY ADENYLATE CYCLASE-ACTIVATING
FT POLYPEPTIDE.
SQ SEQUENCE 172 AA; 19558 MW; 458117F0042E36DD CRC64;

Query Match 43.2%; Score 86; DB 13; Length 172;
Best Local Similarity 50.0%; Pred. No. 0.0068;
Matches 16; Conservative 8; Mismatches 8; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSQQE 32
DB 81 HADGMFNKAYRKALGQLSARKYLHTLMKRVG 112
||:|||||
||:|||||

RESULT 8
Q98SP5 PRELIMINARY; PRT; 173 AA.
ID Q98SP5
AC Q98SP5
DT 01-JUN-2001 (TrEMBLrel. 17, Created)
DT 01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
DT 01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE Growth hormone-releasing hormone/pituitary adenylate cyclase-
DE activating polypeptide.
OS Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Euteleostei;
OC Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
OX NCBI_TaxID=8022;
RN [1]
RP SEQUENCE FROM N.A.
RA Krueckl S.B.; Sherwood N.M.;
RT "Temporal expression of grf/pacp during rainbow trout development.";
RL Submitted (JAN-2001) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF343976; AAK28557.1; -.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 2.
DR PRINTS; PR00275; GLUCAGON.
DR SMART; SM00070; GLUCA; 2.
DR PROSITE; PS00260; GLUCAGON; 2.
SQ SEQUENCE 173 AA; 19783 MW; 21D1A06A9C47F780 CRC64;

Query Match 41.7%; Score 83; DB 13; Length 173;
Best Local Similarity 50.0%; Pred. No. 0.0018;
Matches 15; Conservative 8; Mismatches 7; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSQQE 30
DB 82 HADGMFNKAYRKALGQLSARKYLHTLMKRVG 111
||:|||||
||:|||||

RESULT 9
Q7ZYG8 PRELIMINARY; PRT; 202 AA.
ID Q7ZYG8
AC Q7ZYG8
DT 01-JUN-2003 (TrEMBLrel. 24, Created)
DT 01-JUN-2003 (TrEMBLrel. 24, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE Hypothetical protein.
OS Xenopus laevis (African clawed frog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidae; Pipidae;
OC Xenopodidae; Xenopus.
OX NCBI_TaxID=8355;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Embryo;

Mon Jul 19 13:55:15 2004

Klein S., Strausberg R.;
Submitted (JAN-2003) to the EMBL/GenBank/DDBJ databases.
EMBL; BC043792; AAH43792.1; -.
GO; GO:0005576; C:extracellular; IEA.
GO; GO:0005179; F:hormone activity; IEA.
InterPro; IPR000532; Glucagon.
Pfam; PF00123; hormone2; 2.
PRINTS; PR00275; GLUCAGON.
SMART; SM00070; GLUCA; 2.
PROSITE; PS00260; GLUCAGON; 1.
Hypothetical protein.
KW
SEQUENCE 202 AA; C38939324E96651EF CRC64;
Query Match 39.2%; Score 78; DB 13; Length 202;
Best Local Similarity 43.3%; Pred.No. 0.011; Indels 0; Gaps 0;
Matches 13; Conservative 11; Mismatches 6; Indels 0; Gaps 0;
QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSRRQ 30
:: : :: : : : :: :
DB 87 HADGLFTSGYSKILGQLSARYLESICKR 116
RESULT 10
Q98SP6 Q98SP6 PRELIMINARY; PRT; 89 AA.
ID Q98SP6
AC Q98SP6; (TrEMBRel. 17, Created)
DT 01-JUN-2001 (TrEMBRel. 17, Last sequence update)
DT 01-JUN-2003 (TrEMBRel. 24, Last annotation update)
DE Growth hormone-releasing polypeptide/adenyate cyclase-activating polypeptide (Fragment).
DE PACAP
GN Anas platyrhynchos (Domestic duck).
OS Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; OC Archosauria; Aves; Neognathae; Anseriformes; Anatidae; Anas. NCBI_TaxID=8839;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Pituitary;
RA Colitti M., Mirabella N., Squillacioti C., Venturini B.;
Submitted (JAN-2001) to the EMBL/GenBank/DDBJ databases.
EMBL; AF343119; AAC11148.1; -.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
InterPro; IPR000532; Glucagon.
Pfam; PF00123; hormone2; 2.
PRINTS; PR00275; GLUCAGON.
SMART; SM00070; GLUCA; 2.
PROSITE; PS00260; GLUCAGON; 1.
NON TER 1
FT NON TER 89 89
SEQ SEQUENCE 89 AA; 10263 MW; B618C2A86SB85439 CRC64;
Query Match 38.7%; Score 77; DB 13; Length 89;
Best Local Similarity 62.5%; Pred.No. 0.006;
Matches 15; Conservative 5; Mismatches 4; Indels 0; Gaps 0;
QY 9 SYRKVLGQLSARKLLQDIMSROOG 32
: : : :
DB 6 SYRKVLGQLSARKYLHSLSMAKEVG 29
RESULT 11
Q8MI77 Q8MI77 PRELIMINARY; PRT; 170 AA.
ID Q8MI77
AC Q8MI77; (TrEMBRel. 22, Created)
DT 01-OCT-2002 (TrEMBRel. 22, Last sequence update)
DT 01-JUN-2003 (TrEMBRel. 24, Last annotation update)
DE Vasointestinal peptide precursor.
OS Bos taurus (Bovine).
EC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; OC Mamalia; Eutheria; Cetartiodactyla; Rumiantia; Pecora; Bovidea;

Vasoactive intestinal polypeptide.

Mus musculus (Mouse).

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sclurognathi; Muridae; Murinae; Mus.
NCBI_TaxID=10090;

[1]

SEQUENCE FROM N.A.

TISSUE=Cecum;
MEDLINE=21085660; PubMed=11217851;

Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,
Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
Aizawa K., Izawa M., Nishi K., Kiyoisawa H., Kondo S., Yamanaoka I.,
Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,
Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,
Kuehl P., Lewis S., Mateuo Y., Nikolaic D., Pesole G., Quackenbush J.,
Schriml L.M., Staebli F., Suzuki R., Tomita M., Wagner L., Washio T.,
Akai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
Blake J., Boftelli D., Bojunga N., Carninci P., de Bonaldo M.F.,
Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,
Grawcincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P.,
Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-P.,
Suzuki H., Toyooka O.K., Wang K.H., Weitz C., Whittaker C., Wilming L.,
Wynshaw-Boris A., Yoshida K., Hasegawa Y., Kawaji H., Kohetsuki S.,
Hayashizaki Y.;

"Functional annotation of a full-length mouse cDNA collection.";

Nature 409:685-690(2001).

EMBL; AK018599; BAB31301.1; -.

MGD; MG1:98933; Vip.

GO; GO:0005576; C:extracellular; IEA.

GO; GO:0005179; F:hormone activity; IEA.

InterPro; IPRO00532; Glucagon.

Pfam; PF00123; hormone2; 2.

PRINTS; PR00275; GLUCAGON.

SMART; SM00070; GLUCA; 2.

PROSITE; PS00260; GLUCAGON; 2.

SEQUENCE 171 AA; 19135 MW; 134A434DB6DF1254 CRC64;

Query Match 37.2%; Score 74; DB 11; Length 171;
Best Local Similarity 36.7%; Pred. No. 0.032;
Matches 11; Conservative 13; Mis-matches 6; Indels 0; Gaps 0;

QY 1 YANAIFTNSRYKVLGGQSARKLLQDIMSRQ 30
:: : ::| | : : ||| ::||| : : :: :

Dd 82 HDGVFTSDYSRLGLQGISAKKYLESLIGKR 111

RESULT 14

I9DPUF8 PRELIMINARY; PRT; 171 AA.

AC Q3PUF8

DT 01-MAY-2000 (TrEMBLrel. 13, Created)

DD 01-MAY-2000 (TrEMBLrel. 13, Last sequence update)

DE 01-JUN-2003 (TrEMBLrel. 24, Last annotation update)

DE Pituitary adenylate cyclase-activating peptide.

GN PACAP.

OS Xenopus laevis (African clawed frog).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Amphibia; Batrachia; Anura; Mesobatrachia; Pipidea; Pipidae;
Xenopodinae; Xenopus.
NCBI_TaxID=8355;

[1]

SEQUENCE FROM N.A.

MEDLINE=20419093; PubMed=10965909;

Hu Z., Leblievre V., Tam J., Cheng J.W., Fuenzalida G., Zhou X.,
Waschek J.A.;

"Molecular cloning of growth hormone-releasing hormone/pituitary
adenylate cyclase-activating polypeptide in the frog Xenopus laevis:
brain distribution and regulation after castration.";

Endocrinology 141:3366-3376(2000).

us-10-021-403a-1.rspt

Mon Jul 19 13:55:15 2004

Search completed: July 12, 2004, 20:51:52
Job time : 36.5 secs

GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: July 12, 2004, 20:41:06 ; Search time 50.5 Seconds
(without alignments)
223.800 Million cell updates/sec

Title: US-10-021-403A-8

Perfect score: 198

Sequence: 1 HVDAFTNSYRKVLQSLARKLLQDILNRQQGSRNQEQGA 40

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1586107 seqs, 282547505 residues

Total number of hits satisfying chosen parameters: 1586107

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : A_Geneseq_29Jan04:*

1: Geneseqp1980s:*

2: Geneseqp1990s:*

3: Geneseqp2000s:*

4: Geneseqp2001s:*

5: Geneseqp2002s:*

6: Geneseqp2003as:*

7: Geneseqp2003bs:*

8: Geneseqp2004s:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	198	100.0	40	4	AAB69173 Porcine m
2	198	100.0	40	5	ABB78058 Amino aci
3	198	100.0	40	6	AAE35252 Porcine g
4	198	100.0	40	6	AAO30850 Growth ho
5	198	100.0	40	6	AAO29860 Growth ho
6	198	100.0	40	7	ABR84637 Growth ho
7	198	100.0	71	6	AAE35274 Porcine p
8	192	97.0	40	6	AAO30852 Growth ho
9	192	97.0	40	6	AAO29862 Growth ho
10	192	97.0	40	7	ABR84639 Growth ho
11	191	96.5	40	6	AAO30851 Growth ho
12	191	96.5	40	6	AAO29861 Growth ho
13	191	96.5	40	7	ABR84638 Growth ho
14	188	94.9	40	6	AAO30853 Porcine g
15	188	94.9	40	6	AAO29863 Porcine g
16	188	94.9	40	7	ABR84640 Porcine g
17	184	92.9	78	2	AAO14656 Specific
18	184	92.9	78	2	AAO14655 Specific
19	184	92.9	79	2	AAO14651 Specific
20	184	92.9	89	2	AAO14657 Specific
21	183	92.4	40	2	AAO29522 [His 1, V
22	182	91.9	40	2	AAO29526 [His 1, I
23	182	91.9	44	1	AAO50142 Sequence
24	182	91.9	44	1	AAO71497 Growth ho
25	182	91.9	44	2	AAO24177 Caprine g

26	182	91.9	44	2	AAO27773 Mature bG
27	182	91.9	44	2	AAO24361 Sequence
28	182	91.9	44	2	AAO29417 Growth ho
29	182	91.9	44	2	AAO16378 Synthetic
30	182	91.9	44	4	AAO90938 Growth ho
31	182	91.9	78	2	AAO14659 Specific
32	182	91.9	78	2	AAO14658 Specific
33	182	91.9	79	2	AAO14652 Specific
34	182	91.9	106	2	AAO27774 Precursor
35	181	91.4	40	2	AAO25083 BGRF prod
36	181	91.4	44	1	AAO50143 Sequence
37	181	91.4	44	1	AAO71498 Growth ho
38	181	91.4	44	2	AAO24178 Ovine gro
39	181	91.4	44	2	AAO29418 Growth ho
40	181	91.4	44	4	AAO90951 Growth ho
41	180	90.9	40	2	AAO20525 [His 1, L
42	179	90.4	40	2	AAO24391 Sequence
43	177	89.4	40	2	AAO24169 Growth ho
44	177	89.4	40	4	AAO69172 Porcine G
45	177	89.4	40	5	ABB78057 Amino aci

ALIGNMENTS

RESULT 1

AAB69173

ID AAB69173 standard; peptide; 40 AA.

XX AAB69173;

AC AAB69173;

DT 26-APR-2001 (first entry)

XX Porcine mutant GHRH analogue HV-GHRH.

DE Human; porcine; growth hormone releasing hormone; GHRH; mutagenesis;

XX Human; porcine; growth hormone releasing hormone; GHRH; mutagenesis;

KW vulnary; anti-HIV; growth performance; wasting; burn; trauma; AIDS;

KW acquired immunodeficiency syndrome; consumption disease; growth hormone;

KW enhancing growth.

XX Sus scrofa.

OS Synthetic.

XX WO200106988-A2.

PN 01-FEB-2001.

PD 24-JUL-2000; 2000WO-US020127.

XX 26-JUL-1999; 99US-0145624P.

PR (BAYU) BAYLOR COLLEGE MEDICINE.

XX Schwartz RJ, Draghia-Akli R;

PI WPI; 2001-168489/17.

XX New growth hormone release hormone analog for treating growth hormone-

XX related deficiencies, improving growth performance and stimulating the

XX production of growth hormone in an animal.

XX Example 1; Fig 1A; 56pp; English.

XX The present invention describes a growth hormone-releasing hormone (GHRH)

XX analogue (I). Also described are: (1) a pharmaceutical composition (PC)

XX for stimulating the release of growth hormone (GH) in animals, comprising

XX (I); (2) a nucleotide sequence (II) encoding (I) as a composition of

XX matter; (3) a vector (III) comprising a promoter (II) and a 3',

XX untranslated region operatively linked for functional expression; (4)

XX increasing GH, treating a GH-related deficiency disease associated with

XX the GH pathway, improving growth performance, treating wasting symptoms,

XX and enhancing growth, in an animal comprising introducing (III) into the

XX animal; (5) increasing the efficiency in an animal comprising introducing

CC also useful for treating the growth hormone-related deficiencies
 CC associated with the growth hormone pathway, treating growth hormone-
 CC related deficiencies associated with genetic disease, and to prevent or
 CC treat bone loss, as in elderly, or post-fracture. It is also applied in
 CC vivo to effect expression of a transgene for gene therapy purposes. The
 CC present sequence is porcine GHRH variant protein used in the invention
 XX
 XX Sequence 40 AA;
 SQ

Query Match 100.0%; Score 198; DB 6; Length 40;
 Best Local Similarity 100.0%; Pred. No. 4.1e-18;
 Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQGGERNQEQGA 40
 Db 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQGGERNQEQGA 40

RESULT 4
 AAO30850
 ID AAO30850 standard; protein; 40 AA.
 AC AAO30850;
 XX
 DT 22-SEP-2003 (first entry)
 XX
 DE Growth hormone releasing hormone (GHRH) mutant protein, HV-GHRH.
 XX
 KW Plasmid-mediated supplementation; anaemia; tumour; adenoma; melanoma;
 KW sarcoma; immune dysfunction; carcinoma; leukaemia; kidney failure;
 KW lymphoma; weight loss; lymphopenia; appetite stimulant; anorectic;
 KW growth hormone releasing hormone; GHRH; mutant; mutein.
 XX
 OS Unidentified.
 XX

FH Key Location/Qualifiers
 FT Misc-difference 1 /note= "Wild-type Tyr is substituted with His"
 FT Misc-difference 2 /note= "Wild-type Ala is substituted with Val"
 FT Misc-difference 15 /note= "Wild-type Gly is substituted with Ala"
 FT Misc-difference 27 /note= "Wild-type Met is substituted with Leu"
 FT Misc-difference 28 /note= "Wild-type Ser is substituted with Asn"
 XX
 FN WO2003049700-A2.
 XX
 PD 19-JUN-2003.
 XX
 PF 10-DEC-2002; 2002WO-US039509.
 XX
 PR 11-DEC-2001; 2001US-0339610P.
 XX
 PA (ADVI-) ADVISYS INC.
 PA (BAYU) BAYLOR COLLEGE MEDICINE.
 XX
 PI Draghia-Akli R, Carpenter RH, Kern DR, Schwartz RJ, King G;
 PI Hahn K, Brenner MK;
 XX
 DR WPI; 2003-558968/52.
 XX
 XX Treating anemia, immune dysfunction, tumor, increasing total red blood
 PT cell mass, reversing wasting or abnormal weight loss in subject, by
 PT administering nucleic acid construct encoding growth-hormone-releasing-
 PT hormone.
 XX
 PS Claim 13; Fig 1; 212pp; English.
 XX
 CC The invention relates to compositions and methods for plasmid-mediated
 CC supplementation. The method is useful for treating anaemia, tumour (such
 CC as adenoma, mast cell tumour, melanoma, sarcoma or solid tumour), immune

CC dysfunction, carcinoma (benign or malignant), leukaemia, lymphoma or
 CC kidney failure, for preventing the development of metastatic tumour, for
 CC increasing total red blood cell mass, for reversing wasting, abnormal
 CC weight loss or suppression of lymphopoiesis, in a subject, or for
 CC increasing weight gain in a chronically ill subject or, or for extending
 CC life expectancy for a chronically ill subject. The present sequence is a
 CC growth hormone releasing hormone (GHRH) mutant protein. This sequence is
 CC used to illustrate the method of the invention
 XX

SQ Sequence 40 AA;

Query Match 100.0%; Score 198; DB 6; Length 40;
 Best Local Similarity 100.0%; Pred. No. 4.1e-18;
 Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQGGERNQEQGA 40
 Db 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQGGERNQEQGA 40

RESULT 5
 AAO29860
 ID AAO29860 standard; protein; 40 AA.
 AC AAO29860;
 XX
 DT 27-AUG-2003 (first entry)
 XX

DE Growth hormone releasing hormone (GHRH) mutant protein, HV-GHRH.

XX Growth hormone releasing hormone; GHRH; lean body mass; bone density;
 KW bone healing; gene therapy; anorectic; osteopathic; mutant; mutein.
 XX
 OS Unidentified.
 XX

FH Key Location/Qualifiers
 FT Misc-difference 1 /note= "Wild-type Tyr is substituted with His"
 FT Misc-difference 2 /note= "Wild-type Ala is substituted with Val"
 FT Misc-difference 15 /note= "Wild-type Gly is substituted with Ala"
 FT Misc-difference 27 /note= "Wild-type Met is substituted with Leu"
 FT Misc-difference 28 /note= "Wild-type Ser is substituted with Asn"
 XX

FN WO2003038112-A2.

XX 08-MAY-2003.

XX 25-OCT-2002; 2002WO-US034275.

XX 26-OCT-2001; 2001US-0357808P.

XX (BAYU) BAYLOR COLLEGE MEDICINE.

XX Draghia-Akli R, Schwartz RJ;
 XX WPI; 2003-493212/46.

XX Decreasing body fat proportion, increasing lean body mass, bone density
 PT or bone healing rate by delivering into cells of the subject a nucleic
 PT acid expression construct that encodes a growth-hormone-releasing-hormone
 PT (GHRH).
 XX
 PS Claim 167; Fig 1; 165pp; English.
 XX
 CC The invention relates to a method for decreasing body fat proportion,
 CC increasing lean body mass, bone density or bone healing rate in a subject
 CC which involves delivering a nucleic acid expression construct that
 CC encodes a growth hormone releasing hormone (GHRH) or its functional
 CC biological equivalent into cells of the subject. The method is useful for

CC decreasing body fat proportion, for increasing lean body mass, bone
CC density or bone healing rate, or for altering lean body mass in a
CC subject. It is used in gene therapy. The present sequence is GHRH mutant
CC protein. This sequence is used to illustrate the method of the invention
XX
SQ Sequence 40 AA;
Query Match 100.0%; Score 198; DB 6; Length 40;
Best Local Similarity 100.0%; Pred. No. 4.1e-18;
Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQGA 40
DB 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQGA 40
RESULT 6
ABR84637
AC ABR84637;
XX
XX 18-DEC-2003 (first entry)
XX Growth hormone releasing hormone mutant SEQ ID NO: 1.
XX Human; growth hormone releasing hormone; GHRH; pig; gene therapy;
KW intergenerational growth promotion; pituitary gland; mutein; mutant;
KW hypopituitary dwarfism.
XX Unidentified.
OS Synthetic.
XX
XX Key Location/Qualifiers
FT Misc-difference 1 /note= "wild-type Tyr substituted by His"
FT Misc-difference 2 /note= "wild-type Ala substituted by Val"
FT Misc-difference 15 /note= "wild-type Gly substituted by Ala"
FT Misc-difference 27 /note= "wild-type Met substituted by Leu"
FT Misc-difference 28 /note= "wild-type Ser substituted by Asn"
XX
XX WO2003066825-A2.
XX
XX 14-AUG-2003.
XX
XX 06-FEB-2003; 2003WO-US003640.
XX
XX 07-FEB-2002; 2002US-0355566P.
XX
XX (BAYU) BAYLOR COLLEGE MEDICINE.
XX
XX Draghia-Akli R, Khan A;
XX WPI; 2003-731498/69.
XX
XX Changing the pituitary lineage in an offspring from a female subject
PT given a nucleic acid expression construct that encodes GHRH, useful in
PT treating growth deficiency disorders such as hypopituitary dwarfism.
XX
XX Disclosure; Page 70; Opp; English.
XX
XX The present invention relates to a method of changing the pituitary
CC lineage in an offspring from a female subject. This comprises delivering
CC a nucleic acid expression construct into cells of the female subject,
CC where the delivery is completed prior to or during a gestation period of
CC the offspring and the nucleic acid expression construct comprises a
CC promoter, a nucleotide sequence and a 3' untranslated region, and
CC delivery is completed under conditions where expression of the nucleotide
CC sequence results in the changing of the pituitary lineage in the

CC offspring. The promoter in the method cited comprises a myogenic promoter
CC and the nucleic acid expression construct encodes a growth-hormone-
CC releasing-hormone (GHRH) or its functional biological equivalent. The
CC methods and compositions of the present invention are useful for altering
CC pituitary development and hormone secretion (prolactin) in the offspring
CC of a female subject given a nucleic acid expression construct that
CC encodes GHRH. They can specifically be useful in growth deficiency
CC disorders such as hypopituitary dwarfism, and where milk production and
CC egg production stimulation is needed particularly in animal breeding
CC purposes. The present sequence is a mutated version of a GHRH protein
XX
SQ Sequence 40 AA;
Query Match 100.0%; Score 198; DB 7; Length 40;
Best Local Similarity 100.0%; Pred. No. 4.1e-18;
Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQGA 40
DB 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQGA 40
RESULT 7
AAE35274
ID AAE35274 standard; protein; 71 AA.
XX
XX AAE35274;
XX 28-MAY-2003 (first entry)
XX Porcine pre-pro growth hormone releasing hormone (GHRH).
XX Growth hormone releasing hormone; GHRH; insulin-like froth factor-I;
KW IGF-I; osteopathic; acquired immune deficiency syndrome; AIDS; cancer;
KW post-surgery; growth hormone-related deficiency; transgene; bone loss;
KW burn; post-fracture; genetic disease; gene therapy; porcine.
XX
XX Sus scrofa.
XX
XX Key Location/Qualifiers
FT Peptide 1..31 /label= Signal_peptide
FT Protein 32..71 /note= "Porcine mature GHRH"
XX
XX WO200297099-A1.
XX
XX 05-DEC-2002.
XX 30-MAY-2001; 2001WO-US017573.
XX
XX 29-MAY-2001; 2001US-0294316P.
XX
XX (VALE-) VALENTIS INC.
XX (BAYU) BAYLOR COLLEGE MEDICINE.
XX
XX Nordstrom JL, Draghia-Akli R;
XX WPI; 2003-140478/13.
XX N-PSDB; AAD53819.
XX
XX Novel inducible growth hormone releasing hormone expression system in
PT which expression of gene encoding GHRH that induces production of insulin
PT -like froth factor-I in vivo, is not observed in absence of ligand.
XX
XX Claim 36; Fig 12; 45pp; English.
XX
XX The invention relates to an inducible growth hormone releasing hormone
CC (GHRH) expression system in which expression of gene encoding GHRH that
CC induces production of insulin-like froth factor-I (IGF-I) in vivo, is not
CC observed in absence of ligand. The invention is useful for preparing a
CC pharmaceutical composition for indications such as increasing weight,
CC increasing lean body mass, decreasing fat mass, conversion to anabolism

CC for a catabolic state associated with wasting, and increasing bone area,
 CC content and density. It is useful for regulated GHRH expression in vivo,
 CC for use in the indications, where the wasting is associated with cancer,
 CC acquired immune deficiency syndrome (AIDS), burns, or post-surgery. It is
 CC also useful for treating the growth hormone-related deficiencies
 CC associated with the growth hormone pathway, treating growth hormone-
 CC related deficiencies associated with genetic disease, and to prevent or
 CC treat bone loss, as in elderly, or post-fracture. It is also applied in
 CC vivo to effect expression of a transgene for gene therapy purposes. The
 CC present sequence is porcine pre-pro GHRH protein used in the invention
 XX
 SQ Sequence 71 AA;

Query Match 100.0%; Score 198; DB 6; Length 71;
 Best Local Similarity 100.0%; Pred. No. 7.6e-18;
 Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOBOGA 40
 |||||
 Db 32 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOBOGA 71
 |||||

RESULT 8

AAO30852
 ID AAO30852 standard; protein; 40 AA.
 AC AAO30852;

DT 22-SEP-2003 (first entry)

XX Growth hormone releasing hormone (GHRH) mutant protein, TV-GHRH.

XX Plasmid-mediated supplementation; anaemia; tumour; adenoma; melanoma;
 KW sarcoma; immune dysfunction; carcinoma; leukaemia; kidney failure;
 KW lymphoma; weight loss; lymphopoeisis; appetite stimulant; anorectic;
 KW growth hormone releasing hormone; GHRH; mutant; mutein.

OS Unidentified.

FH Key Location/Qualifiers

FT Misc-difference 2 /note= "Wild-type Ala is substituted with Val"
 FT Misc-difference 15 /note= "Wild-type Gly is substituted with Ala"
 FT Misc-difference 27 /note= "Wild-type Met is substituted with Leu"
 FT Misc-difference 28 /note= "Wild-type Ser is substituted with Asn"

XX WO2003049700-A2.

XX 19-JUN-2003.

XX 10-DEC-2002; 2002WO-US039509.

XX 11-DEC-2001; 2001US-0339610P.

XX (ADVI-) ADVISYS INC

XX (BAYU) BAYLOR COLLEGE MEDICINE.

PI Draghia-Akli R, Carpenter RH, Kern DR, Schwartz RJ, King G;
 PI Hahn K, Brenner MK;

XX WPI; 2003-558968/52.

XX Treating anemia, immune dysfunction, tumor, increasing total red blood
 PT cell mass, reversing wasting or abnormal weight loss in subject, by
 PT administering nucleic acid construct encoding growth-hormone-releasing-
 PT hormone.

PS Claim 13; Fig 1; 212pp; English.

XX The invention relates to compositions and methods for plasmid-mediated

CC supplementation. The method is useful for treating anaemia, tumour (such
 CC as adenoma, mast cell tumour, melanoma, sarcoma or solid tumour), immune
 CC dysfunction, carcinoma (benign or malignant), leukaemia, lymphoma or
 CC kidney failure, for preventing the development of metastatic tumour, for
 CC increasing total red blood cell mass, for reversing wasting, abnormal
 CC weight loss or suppression of lymphopoeisis, in a subject, or for
 CC increasing weight gain in a chronically ill subject, or for extending
 CC life expectancy for a chronically ill subject. The present sequence is a
 CC growth hormone releasing hormone (GHRH) mutant protein. This sequence is
 CC used to illustrate the method of the invention
 XX
 SQ Sequence 40 AA;

Query Match 97.0%; Score 192; DB 6; Length 40;
 Best Local Similarity 97.5%; Pred. No. 2.4e-17;
 Matches 39; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOBOGA 40
 :|||
 Db 1 YVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOBOGA 40
 :|||

RESULT 9

AAO29862

ID AAO29862 standard; protein; 40 AA.

XX AAO29862;

DT 27-AUG-2003 (first entry)

XX Growth hormone releasing hormone (GHRH) mutant protein, TV-GHRH.

XX Growth hormone releasing hormone; GHRH; lean body mass; bone density;
 KW bone healing; gene therapy; anorectic; osteopathic; mutant; mutein.

OS Unidentified.

FH Key Location/Qualifiers

FT Misc-difference 2 /note= "Wild-type Ala is substituted with Val"
 FT Misc-difference 15 /note= "Wild-type Gly is substituted with Ala"
 FT Misc-difference 27 /note= "Wild-type Met is substituted with Leu"
 FT Misc-difference 28 /note= "Wild-type Ser is substituted with Asn"

XX WO2003038112-A2.

XX 08-MAY-2003.

XX 25-OCT-2002; 2002WO-US034275.

XX 26-OCT-2001; 2001US-0357808P.

XX (BAYU) BAYLOR COLLEGE MEDICINE.

PI Draghia-Akli R, Schwartz RJ;

XX WPI; 2003-493212/46.

XX Decreasing body fat proportion, increasing lean body mass, bone density
 PT or bone healing rate by delivering into cells of the subject a nucleic
 PT acid expression construct that encodes a growth-hormone-releasing-hormone
 PT (GHRH).

PS Claim 167; Fig 1; 165pp; English.

XX The invention relates to a method for decreasing body fat proportion,
 CC increasing lean body mass, bone density or bone healing rate in a subject
 CC which involves delivering a nucleic acid expression construct that
 CC encodes a growth hormone releasing hormone (GHRH) or its functional
 CC biological equivalent into cells of the subject. The method is useful for

decreasing body fat proportion, for increasing lean body mass, bone density or bone healing rate, or for altering lean body mass in a subject. It is used in gene therapy. The present sequence is GHRH mutant protein. This sequence is used to illustrate the method of the invention

Sequence 40 AA;
Query Match 97.0%; Score 192; DB 6; Length 40;
Best Local Similarity 97.5%; Pred. No. 2.4e-17;
Matches 39; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

1 HVDAIFTNSYRKVLQSLARKLLQDILNROQGERNOEQA 40
:|||||
1 YVDAIFTNSYRKVLQSLARKLLQDILNROQGERNOEQA 40

RESULT 10
ABR84639
ID ABR84639 standard; protein; 40 AA.
XX
AC ABR84639;
XX
DT 18-DEC-2003 (first entry)
XX
DE Growth hormone releasing hormone mutant SEQ ID NO: 3.
XX
DE Human; growth hormone releasing hormone; GHRH; pig; gene therapy;
KW intergenerational growth promotion; pituitary gland; mutein; mutant;
KW hypopituitary dwarfism.
XX
XX Unidentified.
OS Synthetic.
XX
XX Key Location/Qualifiers
FH Misc-difference 2 /note= "wild-type Ala substituted by Tyr"
FT
FT Misc-difference 15 /note= "wild-type Gly substituted by Ala"
FT
FT Misc-difference 27 /note= "wild-type Met substituted by Leu"
FT
FT Misc-difference 28 /note= "wild-type Ser substituted by Asn"
FT
XX WO2003066825-A2.
XX
XX 14-AUG-2003.
XX
XX 06-FEB-2003; 2003WO-US003640.
XX
XX 07-FEB-2002; 2002US-0355566P.
XX
XX (BAYU) BAYLOR COLLEGE MEDICINE.
XX
XX Draghia-Akli R, Khan A;
XX
XX WPI; 2003-731498/69.
XX
XX Changing the pituitary lineage in an offspring from a female subject
PT given a nucleic acid expression construct that encodes GHRH, useful in
PT treating growth deficiency disorders such as hypopituitary dwarfism.
XX
XX Disclosure; Page 71; Opp; English.
XX
XX The present invention relates to a method of changing the pituitary
CC lineage in an offspring from a female subject. This comprises delivering
CC a nucleic acid expression construct into cells of the female subject,
CC where the delivery is completed prior to or during a gestation period of
CC the offspring and the nucleic acid expression construct comprises a
CC promoter, a nucleotide sequence and a 3' untranslated region, and
CC delivery is completed under conditions where expression of the nucleotide
CC sequence results in the changing of the pituitary lineage in the
CC offspring. The promoter in the method cited comprises a myogenic promoter
CC and the nucleic acid expression construct encodes a growth-hormone-

releasing-hormone (GHRH) or its functional biological equivalent. The methods and compositions of the present invention are useful for altering pituitary development and hormone secretion (prolactin) in the offspring of a female subject given a nucleic acid expression construct that encodes GHRH. They can specifically be useful in growth deficiency disorders such as hypopituitary dwarfism, and where milk production and egg production stimulation is needed particularly in animal breeding purposes. The present sequence is a mutated version of a GHRH protein

Sequence 40 AA;
Query Match 97.0%; Score 192; DB 7; Length 40;
Best Local Similarity 97.5%; Pred. No. 2.4e-17;
Matches 39; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

1 HVDAIFTNSYRKVLQSLARKLLQDILNROQGERNOEQA 40
:|||||
1 YVDAIFTNSYRKVLQSLARKLLQDILNROQGERNOEQA 40

RESULT 11
AAO30851
ID AAO30851 standard; protein; 40 AA.
XX
AC AAO30851;
XX
DT 22-SEP-2003 (first entry)
XX
DE Growth hormone releasing hormone (GHRH) mutant protein, TI-GHRH.
XX
XX Plasmid-mediated supplementation; anaemia; tumour; adenoma; melanoma;
KW sarcoma; immune dysfunction; carcinoma; leukaemia; kidney failure;
KW lymphoma; weight loss; lymphopoeisis; appetite stimulant; anorectic;
KW growth hormone releasing hormone; GHRH; mutant; mutein.
XX
XX Unidentified.
OS
XX
XX Key Location/Qualifiers
FH Misc-difference 2 /note= "Wild-type Ala is substituted with Ile"
FT
FT Misc-difference 15 /note= "Wild-type Gly is substituted with Ala"
FT
FT Misc-difference 27 /note= "Wild-type Met is substituted with Leu"
FT
FT Misc-difference 28 /note= "Wild-type Ser is substituted with Asn"
FT
XX WO2003049700-A2.
XX
XX 19-JUN-2003.
XX
XX 10-DEC-2002; 2002WO-US039509.
XX
XX 11-DEC-2001; 2001US-0339610P.
XX
XX (ADVI-) ADVISYS INC.
XX (BAYU) BAYLOR COLLEGE MEDICINE.
XX
XX Draghia-Akli R, Carpenter RH, Kern DR, Schwartz RJ, King G;
PI Hahn K, Brenner MK;
XX WPI; 2003-558968/52.
XX
XX Treating anemia, immune dysfunction, tumor, increasing total red blood
PT cell mass, reversing wasting or abnormal weight loss in subject, by
PT administering nucleic acid construct encoding growth-hormone-releasing-hormone.
XX
XX Claim 13; Fig 1; 212pp; English.
XX
XX The invention relates to compositions and methods for plasmid-mediated
CC supplementation. The method is useful for treating anaemia, tumour (such
CC as adenoma, mast cell tumour, melanoma, sarcoma or solid tumour), immune

CC dysfunction, carcinoma (benign or malignant), leukaemia, lymphoma or
CC kidney failure, for preventing the development of metastatic tumour, for
CC increasing total red blood cell mass, for reversing wasting, abnormal
CC weight loss or suppression of lymphopoiesis, in a subject, or for
CC increasing weight gain in a chronically ill subject or, or for extending
CC life expectancy for a chronically ill subject. The present sequence is a
CC growth hormone releasing hormone (GHRH) mutant protein. This sequence is
CC used to illustrate the method of the invention

XX
SQ Sequence 40 AA;

Query Match 96.5%; Score 191; DB 6; Length 40;
Best Local Similarity 95.0%; Pred. No. 3.3e-17;
Matches 38; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQAQLSARKLLQDILNRQOGERNOEQGA 40
:|||||
Db 1 YIDAIFTNSYRKVLQAQLSARKLLQDILNRQOGERNOEQGA 40

RESULT 12
AAO29861
ID AAO29861 standard; protein; 40 AA.
AC AAO29861;

XX
XX
XX 27-AUG-2003 (first entry)

DE Growth hormone releasing hormone (GHRH) mutant protein, TI-GHRH.

XX
XX Growth hormone releasing hormone; GHRH; lean body mass; bone density;
KW bone healing; gene therapy; anorectic; osteopathic; mutant; mutein.
XX
XX Unidentified.

XX
FH Key Location/Qualifiers
FT Misc-difference 2 /note= "Wild-type Ala is substituted with Ile"
FT Misc-difference 15 /note= "Wild-type Gly is substituted with Ala"
FT Misc-difference 27 /note= "Wild-type Met is substituted with Leu"
FT Misc-difference 28 /note= "Wild-type Ser is substituted with Asn"
FT /note= "Wild-type Ser is substituted with Asn"

XX WO2003038112-A2.

XX
XX
PD 08-MAY-2003.

PF 25-OCT-2002; 2002WO-US034275.

XX
XX 26-OCT-2001; 2001US-0357808P.

PR (BAYU) BAYLOR COLLEGE MEDICINE.

PA Draghia-Akli R, Schwartz RJ;

PI WPI; 2003-493212/46.

DR
XX
XX Decreasing body fat proportion, increasing lean body mass, bone density
PT or bone healing rate by delivering into cells of the subject a nucleic
PT acid expression construct that encodes a growth-hormone-releasing-hormone
PT (GHRH).

XX Claim 167; Fig 1; 165pp; English.

XX
CC The invention relates to a method for decreasing body fat proportion,
CC increasing lean body mass, bone density or bone healing rate in a subject
CC which involves delivering a nucleic acid expression construct that
CC encodes a growth hormone releasing hormone (GHRH) or its functional
CC biological equivalent into cells of the subject. The method is useful for
CC decreasing body fat proportion, for increasing lean body mass, bone
CC density or bone healing rate, or for altering lean body mass in a

CC subject. It is used in gene therapy. The present sequence is GHRH mutant
CC protein. This sequence is used to illustrate the method of the invention

XX
SQ Sequence 40 AA;

Query Match 96.5%; Score 191; DB 6; Length 40;
Best Local Similarity 95.0%; Pred. No. 3.3e-17;
Matches 38; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQAQLSARKLLQDILNRQOGERNOEQGA 40
:|||||
Db 1 YIDAIFTNSYRKVLQAQLSARKLLQDILNRQOGERNOEQGA 40

RESULT 13
ABR84638
ID ABR84638 standard; protein; 40 AA.

XX
AC ABR84638;

XX
XX 18-DEC-2003 (first entry)

DE Growth hormone releasing hormone mutant SEQ ID NO: 2.

XX
XX Human; growth hormone releasing hormone; GHRH; pig; gene therapy;
KW intergenerational growth promotion; pituitary gland; mutein; mutant;
KW hypopituitary dwarfism.

XX Unidentified.

OS Synthetic.

XX
FH Key Location/Qualifiers

FT Misc-difference 2 /note= "wild-type Ala substituted by Ile"
FT Misc-difference 15 /note= "wild-type Gly substituted by Ala"
FT Misc-difference 27 /note= "wild-type Met substituted by Leu"
FT Misc-difference 28 /note= "wild-type Ser substituted by Asn"

XX WO2003066825-A2.

XX
XX 14-AUG-2003.

XX
XX 06-FEB-2003; 2003WO-US003640.

XX
XX 07-FEB-2002; 2002US-0355566P.

PR (BAYU) BAYLOR COLLEGE MEDICINE.

PA Draghia-Akli R, Khan A;

PI WPI; 2003-731498/69.

DR
XX
XX Changing the pituitary lineage in an offspring from a female subject
PT given a nucleic acid expression construct that encodes GHRH, useful in
PT treating growth deficiency disorders such as hypopituitary dwarfism.

XX Disclosure; Page 70-71; Opp; English.

XX
CC The present invention relates to a method of changing the pituitary
CC lineage in an offspring from a female subject. This comprises delivering
CC a nucleic acid expression construct into cells of the female subject,
CC where the delivery is completed prior to or during a gestation period of
CC the offspring and the nucleic acid expression construct comprises a
CC promoter, a nucleotide sequence and a 3' untranslated region, and
CC delivery is completed under conditions where expression of the nucleotide
CC sequence results in the changing of the pituitary lineage in the
CC offspring. The promoter in the method cited comprises a myogenic promoter
CC and the nucleic acid expression construct encodes a growth-hormone-
CC releasing-hormone (GHRH) or its functional biological equivalent. The
CC methods and compositions of the present invention are useful for altering

CC pituitary development and hormone secretion (prolactin) in the offspring
CC of a female subject given a nucleic acid expression construct that
CC encodes GHRH. They can specifically be useful in growth deficiency
CC disorders such as hypopituitary dwarfism, and where milk production and
CC egg production stimulation is needed particularly in animal breeding
CC purposes. The present sequence is a mutated version of a GHRH protein
XX
SQ Sequence 40 AA;
Query Match 96.5%; Score 191; DB 7; Length 40;
Best Local Similarity 95.0%; Pred. No. 3.3e-17;
Matches 38; Conservative 2; Mismatches 0; Indels 0; Gaps 0;
Qy 1 HVDAIFTNSYRKVLAQLSARKKLQDILNRQGGERNQEQGA 40
:|||||
Db 1 YDAIFTNSYRKVLAQLSARKKLQDILNRQGGERNQEQGA 40
:|||||
RESULT 14
AAO30853
ID AAO30853 standard; protein; 40 AA.
XX
AC AAO30853;
XX
DT 22-SEP-2003 (first entry)
XX
DE Porcine growth hormone releasing hormone mutant protein, 15/27/28-GHRH.
XX
KW Plasmid-mediated supplementation; anaemia; tumour; adenoma; melanoma;
KW sarcoma; immune dysfunction; carcinoma; leukaemia; kidney failure;
KW lymphoma; weight loss; lymphopoeisis; appetite stimulant; anorectic;
KW growth hormone releasing hormone; GHRH; mutant; mutein; porcine.
XX
OS Sus scrofa.
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Misc-difference 15 /note= "Wild-type Gly is substituted with Ala"
FT Misc-difference 27 /note= "Wild-type Met is substituted with Leu"
FT Misc-difference 28 /note= "Wild-type Ser is substituted with Asn"
FT Misc-difference 28 /note= "Wild-type Ser is substituted with Asn"
XX
FN WO2003049700-A2.
XX
PD 19-JUN-2003.
XX
PF 10-DEC-2002; 2002WO-US039509.
XX
PR 11-DEC-2001; 2001US-0339610P.
XX
PA (ADVI-) ADVISYS INC.
PA (BAYU) BAYLOR COLLEGE MEDICINE.
XX
XX Draghia-Akli R, Carpenter RH, Kern DR, Schwartz RJ, King G;
PI Hahn K, Brenner MK;
XX
DR WPI; 2003-558968/52.
XX
XX Treating anemia, immune dysfunction, tumor, increasing total red blood
PT cell mass, reversing wasting or abnormal weight loss in subject, by
PT administering nucleic acid construct encoding growth-hormone-releasing-
PT hormone.
XX
PS Claim 13; Fig 1; 212pp; English.
XX
CC The invention relates to compositions and methods for plasmid-mediated
CC supplementation. The method is useful for treating anaemia, tumour (such
CC as adenoma, mast cell tumour, melanoma, sarcoma or solid tumour), immune
CC dysfunction, carcinoma (benign or malignant), leukaemia, lymphoma or
CC kidney failure, for preventing the development of metastatic tumour, for
CC increasing total red blood cell mass, for reversing wasting, abnormal

CC weight loss or suppression of lymphopoiesis, in a subject, or for
CC increasing weight gain in a chronically ill subject or, for extending
CC life expectancy for a chronically ill subject. The present sequence is
CC porcine growth hormone releasing hormone (GHRH) mutant protein. This
CC sequence is used to illustrate the method of the invention
XX
SQ Sequence 40 AA;
Query Match 94.9%; Score 188; DB 6; Length 40;
Best Local Similarity 95.0%; Pred. No. 7.9e-17;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
Qy 1 HVDAIFTNSYRKVLAQLSARKKLQDILNRQGGERNQEQGA 40
:|||||
Db 1 YDAIFTNSYRKVLAQLSARKKLQDILNRQGGERNQEQGA 40
:|||||
RESULT 15
AAO29863
ID AAO29863 standard; protein; 40 AA.
XX
AC AAO29863;
XX
DT 27-AUG-2003 (first entry)
XX
DE Porcine growth hormone releasing hormone mutant protein, 15/27/28-GHRH.
XX
KW Growth hormone releasing hormone; GHRH; lean body mass; bone density;
KW bone healing; gene therapy; anorectic; osteopathic; porcine; mutant;
KW mutein.
XX
OS Sus scrofa.
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Misc-difference 15 /note= "Wild-type Gly is substituted with Ala"
FT Misc-difference 27 /note= "Wild-type Met is substituted with Leu"
FT Misc-difference 28 /note= "Wild-type Ser is substituted with Asn"
FT Misc-difference 28 /note= "Wild-type Ser is substituted with Asn"
XX
FN WO2003038112-A2.
XX
PD 08-MAY-2003.
XX
PF 25-OCT-2002; 2002WO-US034275.
XX
PR 26-OCT-2001; 2001US-0357808P.
XX
PA (BAYU) BAYLOR COLLEGE MEDICINE.
XX
PI Draghia-Akli R, Schwartz RJ;
XX
DR WPI; 2003-493212/46.
XX
XX Decreasing body fat proportion, increasing lean body mass, bone density
PT or bone healing rate by delivering into cells of the subject a nucleic
PT acid expression construct that encodes a growth-hormone-releasing-hormone
PT (GHRH).
XX
PS Claim 167; Fig 1; 165pp; English.
XX
CC The invention relates to a method for decreasing body fat proportion,
CC increasing lean body mass, bone density or bone healing rate in a subject
CC which involves delivering a nucleic acid expression construct that
CC encodes a growth hormone releasing hormone (GHRH) or its functional
CC biological equivalent into cells of the subject. The method is useful for
CC decreasing body fat proportion, for increasing lean body mass, bone
CC density or bone healing rate, or for altering lean body mass in a
CC subject. It is used in gene therapy. The present sequence is porcine GHRH
CC mutant protein. This sequence is used to illustrate the method of the
CC invention

XX
SQ Sequence 40 AA;
Query Match 94.9%; Score 188; DB 6; Length 40;
Best Local Similarity 95.0%; Pred. No. 7.9e-17;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
QY 1 HVDALFTNSYRKVLAQLSARKLLQDILNRQGGERNQEQGA 40
Db :|||||
1 YADALFTNSYRKVLAQLSARKLLQDILNRQGGERNQEQGA 40

Search completed: July 12, 2004, 20:46:06
Job time : 50.5 secs

